# EFFECTIVENESS OF ACHARYA TECHNIQUE ON LOW BACK PAIN AMONG NURSES WORKING IN ICU AND OT AT SELECTED HOSPITALS,CHENNAI.

**Dissertation submitted to**

**THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY**

**CHENNAI - 600 032**

**In partial fulfillment of the requirement for the degree of**

**MASTER OF SCIENCE IN NURSING**

**APRIL - 2016**

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*Certified that this is the bonafide work of*

**Mrs. Amutha.A**
**II Year M.Sc., Nursing**
**M.A. Chidambaram College of Nursing**

**V.H.S., T.T.T.I. Post, Adyar ,**

**Chennai - 600 113.**

**Signature ----------**

**Prof.Dr.Sudha, R.N., R.M., M.Sc.(N)., Ph.D,**

**Principal and Professor in Nursing**

**M.A.Chidambaram College of Nursing**

**V.H.S.,T.T.T.I. Post, Adyar,**

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**Approved by the Dissertation Committee in Feburary-2015**

**PROFESSOR IN NURSING RESEARCH**

**Prof. Dr.Mrs. R.Sudha, R.N., R.M., M.Sc(N)., Ph.D(N)** ----------
Principal and Professor in Nursing
M.A.Chidambaram College of Nursing
V.H.S., T.T.T.I. Post, Adyar,
Chennai - 600 113.

**CLINICAL SPECIALITY EXPERT**

**Mrs. Uma Raghu, R.N., R.M., M.Sc(N)** ----------
Professor in Nursing
M.A. Chidambaram College of Nursing
V.H.S, T.T.T.I. Post, Adyar ,
Chennai - 600 113.

**MEDICAL EXPERT**

**Dr.M.C. Vasudevan, MBBS., M.D.(MED) Dip.NB.E.(Neurosurgery)** ----------
Consultant in Neurosurgeon
V.H.S Hospital,
Taramani, Chennai – 600 113.

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| | | |
|---|---|---|
| **ICU** | **:** | Intensive Care Unit |
| **OT** | **:** | Operation Theatre |
| **LBP** | **:** | Low Back Pain |
| **WRMSDs** | **:** | Work Related Musculoskeletal Disorders |
| **MWMs** | **:** | Mobilizations With Movement Techniques |
| **SNAG** | **:** | Sustained Natural Apophyseal Glides |
| **SMT** | **:** | Spinal Manipulative Therapy |
| **PA** | **:** | Posterio-Anterior |
| **NRS** | **:** | Numerical Rating Scale |
| **SIA** | **:** | Spinal Association of India |

# APPENDICES

# INFORMED CONSENT

I have been informed about the purposes of the study being conducted by Mrs.S. Amutha , M.Sc (Nursing ) student of M.A Chidambaram College of Nursing , Adyar, Chennai and I have no objection in participating in the study. I also give my full consent for the use of this data for the purpose of any presentation or publication.

**Name :**

**Signature :**

**Date :**

**Place :**

## INVESTIGATOR DEMONSTRATING THE STEPS OF ACHARYA TECHNIQUE

**STEP : 1 & 4**

**STEP : 2**


**STEP : 3**

**STEP : 5**

# EFFECTIVENESS OF ACHARYA TECHNIQUE ON LOW BACK PAIN AMONG NURSES WORKING IN ICU AND OT AT SELECTED HOSPITALS, CHENNAI.

**SIGNATURE OF THE EXTERNAL EXAMINER**

**SIGNATURE OF THE INTERNAL EXAMINER**

# CHAPTER I

# INTRODUCTION

Pain is an unpleasant sensory, emotional and subjective experience associated with actual or potential tissue damage (International Association of Pain). Low Back Pain (LBP) or lumbo sacral pain / lumbago is defined as discomfort in the spinal area below the level of $12^{th}$ rib and above the gluteal folds (between the lower costal margins and gluteal folds) experienced at least once a month, with or without radiation into the leg (World Health Organization 2012).

The spine and lower back acts as a conduit for precious neural structures and possesses the physiological capacity as a crane for lifting and crankshaft for walking. There are large and complex group of muscles which work together to support the spine, helps to hold the body in upright position and allow the trunk of the body to move, twist and bend in many direction. The major muscles involved in lower back are extensor muscles (erector spinae, gluteal muscles), flexor muscles (abdominal muscles) and oblique muscles ( Peter, F.U. 2015)

The low back pain may arise from pathological and non specific causes. The pathological causes includes degenerative diseases of spine, inflammatory arthropathy metabolic bone conditions, fracture. Non specific or common low back pain is aggravated by static loading of spine (prolonged sitting or standing ) by lever activities such as vacuuming or working with the arms elevated away from the body and levered postures (bending forward). This type of non specific low back pain reduces when the spine is balanced by multidirectional forces such as walking, constantly changing the positions and stretching exercises (Anthony, H.W. et al. 2016).

Globally, the prevalence of LBP is 60-80% among general population. In which 10-50% of them receive stretching exercise as treatment for low back pain. Low back pain is not only considered to be the most common reason for functional disability, but also estimated to affect 90% of the universal population ( Ozlem, O. et al. 2014).

In India, nearly 60% of the people have low back pain at sometimes in their lives and often causes appreciable disability. Low back pain is an emerging public health problem all over the world due to certain occupational factors such as strain, manual lifting of heavy weights. It has been identified as the most vulnerable Work Related Musculoskeletal Disorders (WRMDs) among nursing fraternity. Nurses as a part of the multidisciplinary medical team in hospitals and other medical centers are susceptible to WRMDs. Practicing stretching exercises on regular basis helps nurses to feel comfortable at work place, improve their functional performance and get rid of low back pain (Mathew, A.et al. 2015).

Sandhya, R.V et al (2015) conducted the study at Puduchery to assess the prevalence of low back pain and knowledge on body mechanics among 384 staff nurses in a tertiary care hospital. The study results shown that 74.2% nurses had low back pain among them 4.7 % nurses were diagnosed to have work related low back pain. The study also concluded that about half of the nurses had good knowledge regarding body mechanics but they rarely follow it. Appropriate interventions at initial stage can reduce the incidence of low back pain hence improve the quality of life.

Low back pain is the most costly musculoskeletal disorder affecting nurses. Studies of low back pain related workers compensation claims reveal that nursing personnel have the highest claim rates. An estimate for the year 2012 shown that the incidence of low back pain among nurses was high. In India around 90% of the nurses working in various heath care facilities like nursing homes and hospitals suffers with low back pain. Out of 10,000 nurses 181.6 nurses in nursing homes and 90.1 nurses in hospitals have lost work days due to low back pain ( Lin, P.H. et al. 2012) .

An estimated report on prevalence and impact of musculoskeletal injuries among nurses at Netherland, shown that 52% of them had complaints of chronic low back pain and 48% of them had complaints of acute low back pain. Among them 12% of nurses left their job, 20% transferred to a different unit, 38% of nurses suffered and applied sick leave and 6%, 8%, and 11%, of nurses reported even changing jobs for neck, shoulder and back injuries respectively ( Ghosh, T. et al . 2014).

## BACKGROUND OF THE STUDY

The causes of low back pain in nurses includes both extrinsic and intrinsic risk factors that are relevant to nursing profession. Extrinsic factors include environmental, physical and mechanical factors. The environmental risk factors include work conditions, the organisational climate and the number of staff members per shift on duty. Mechanical factors such as frequent lifting or transferring of patients and repetitive procedures performed with incorrect or poor body posture have also been identified as risk factors for the development of low back pain. Intrinsic factors include personal, ergonomic risk factors and psychosocial predictors such as beliefs about LBP, coping behaviours and psychological distress. Excess weight, low general health status and smoking have also been reported as being possible intrinsic risk factors for the development of low back pain (Cilliers, L. & Maart, S .2015).

Patient handling tasks are recognized as the primary contributing factor for low back pain among the nurses. A variety of patient handling tasks exist within the context of nursing, such as lifting, transferring and transpositioning patients. Physical environment of the health care setting also contributes to low back pain such as configurations of area within patient rooms and the placement of furniture and treatment equipment (e.g critical care unit monitors, ventilator machines) can limit the space needed for patient handling situations (Nelson, A et al. 2014).

The causes for low back pain among nurses were the repetition of body movement functions such as reaching up-forward, holding, clasping, lifting, turning and preparing the ground for the emergency combined with poor body posture especially when nurses perform their duties under time pressure.( Ando, S. et al. 2014).

Working positions often are uncomfortable either due to lack of space or movement restriction caused by spatial circumstances especially in OT and ICU. It has been found that nurses have to walk and stand up a lot of times during their shift more than warehouse workers (Christiana ,D. et al. 2012).

The nurses working in ICU and OT experience low back pain more frequently due to bending forward for long durations, over-forcing /over-loading some body parts while repositioning patients and sparing more time for patient care. From the above risk factors the nurses become less efficient, receive medical leave/retire early ( Gilgil, E. et al. 2015).

Low back pain can be treated by medications, mobilization, stretching exercise, stabilization exercise, ergonomic advise and postural advise and home remedies. Exercise play an important role in preventing and reducing low back pain by strengthening the back muscles and improving flexibility. Literature reviews proved that stretching exercise were effective in reduction of low back pain. Acharya Technique is a simple stretching exercises consisting of 5 steps each with half a minute duration to strengthen lower back muscles and to reduce low back pain. This exercise can be practiced by nurses for 3-5 minutes daily for 15 days to strengthen lower back muscles and to reduce low back pain (Acharya, SM. 2014).

## NEED FOR THE STUDY

The operating theatre, intensive care units are mediate between the various hospitals, departments, the surgeons, and the management. In the past decades, there has been increasing interest in occupational health issues relating to musculoskeletal system. One of these issues is low back pain a phenomenon which is highly prevalent all over the world (Jansen, J & Burdorf, A.et al. 2011).

Nurses are the persons play an important role in protecting, maintaining and improving individuals and community's health. Nurses should give importance to protective and improved actions for their own health, by that they can provide quality nursing care and be productive and administer patient care without interruption (Araz, N.C. et al. 2015).

The repeated attacks of low back pain is the single most cause of absenteeism of nurses in health care services all over the world. Most of the nurses working in ICU and OT suffer from nagging low back pain. This results in the loss of millions of man hours (Bihari, V. et al. 2011). The Acharya Technique is simple, natural movements and cannot harm or worsen any one's health, easy to implement and an acceptable stretching exercise to tackle low back pain among nurses (Acharya, S.M. 2014).

Anand, M & Tamizkodi (2014) conducted the study to assess the efficacy of Acharya Technique on low back pain among 30 industrial workers at Erode. The study results shown that 36.7% participants had complete discomfort by low back pain during pretest after administration of Acharya Technique, 40% of participants had only mild discomfort due to low back pain, thus showing the effectiveness of this technique. They suggested to include Acharya Technique in continuing educational programme on wider scale and accept it as a measure followed to get rid of low back pain.

During clinical posting in ICU and OT the investigator observed that many nurses complaints of work related acute non specific low back pain due to long standing, heavy lifting, transpositioning the dependent patients. The low back pain among nurses makes them to be less efficient, avail frequent offs from duty. This motivated the investigator to conduct a study regarding the effectiveness of Acharya Technique on low back pain among nurses working in ICU and OT.

## STATEMENT OF PROBLEM

A Study to assess the effectiveness of Acharya Technique on low back pain among nurses working in ICU and OT at Selected Hospitals, Chennai.

## OBJECTIVES

1. To assess the low back pain among nurses before and after intervention.

2. To assess the effectiveness of Acharya Technique on low back pain among nurses.

3. To find association between post interventional level of low back pain with the selected demographic and clinical variables.

## OPERATIONAL DEFINITIONS

### ASSESS

It is the act of gathering information regarding reduction of low back pain before and after administration of Acharya Technique (stretching exercise**)** and analyzing the data using statistical methods.

### EFFECTIVENESS

It refers to the outcome of Acharya Technique on low back pain which is measured in terms of difference of pain perception among ICU and OT nurses.

### ACHARYA TECHNIQUE

Simple self treating stretching exercises which involves flexor, extensor and oblique muscles, consists of five steps each of a half a minute duration to reduce low back pain among nurses in ICU and OT.

### LOW BACK PAIN

It refers to discomfort experienced at lower back by the nurses working in ICU and OT set up. It is measured in terms of Numerical pain scale and Modified Roland - Morriss low back pain disability index.

**NURSES**

A person who has successfully completed any one of the program such as Diploma in General Nursing and Midwifery, Bachelor of Science in Nursing, Master of Science in Nursing and working in intensive care unit and operation theatre.

**INTENSIVE CARE UNIT**

A high dependency critical care unit which caters to the intensive medical & surgical needs of adult patients.

**OPERATION THEATRE**

A surgical suite which caters to the dependent patients referred for surgical correction.

## HYPOTHESIS

H01: There will be no significant difference in low back pain of nurses in ICU and OT between experimental and control group.

## ASSUMPTIONS

1. Long hours of standing in ICU and OT may cause low back pain among staff nurses.
2. Acharya Technique will be effective in reducing low back pain among staff nurses working in ICU and OT.

3. Low back pain among staff nurses will be influenced by demographic and clinical variables.

## DELIMITATIONS

1. The sample size is limited to 60 nurses.

2. The study is delimited to the nurses working in selected setting ( ICU and OT).

3. The duration of study is delimited to four weeks.

## PROJECTED OUTCOME

1. The study will help to identify the effectiveness of Acharya Technique on low back pain among nurses.

2. The study findings will help to make recommendations to nurses to practice Acharya Technique

# CONCEPTUAL FRAMEWORK

A conceptual framework is a theoretical approach to study the problems that are scientifically based which emphasis the selection, arrangement and classification of its concepts. A conceptual framework broadly explains phenomena of interest, expresses assumption and reflects a philosophical stance and it explains the relationship between the variable in the diagrammatic representation.

The conceptual framework for this study is derived from " The General system Theory" given by Ludwig Von Bertalanffy**,** 2005. General system theory is a holistic theory that describes a complex system by examining the interactions between its components, rather than by analyzing the detailed structure of each component. It serves as a model for viewing people as a system and their intervention with environment. A system is a complex of interacting elements. It can be open or closed. Open system are open for exchange of matters, energy and information with their environment from which the system receives input and gives back output. Ludwig Von Bertalanffy described living organism as **"open system"** that interacts comprehensively with their environment. Next, he recognized that complex system have emergent properties that cannot be predicted by knowing the properties of its components. In addition, he observed that such a system can also exert control over its components, such as in homeostasis, by using feedback loops.

Open system theory mainly consists of three elements such as:

- **Input**
- **Throughput**
- **Output and feedback**

The system creates, organizes and transforms input in the process known as throughput, which results in a recognition of output. Output is any information that leaves the system and enters to the environment through system boundaries. Feedback is the result of output.

**Input**

Input refers to the person as a system, which has input within the system itself and acquired from the environment. It refers to the stimuli and imported materials from the external environment. In this study the input was demographic, clinical and dependent variables of nurses with low back pain in both experimental and control group. The demographic variables were age, gender, BMI, religion, occupation, educational qualification, type of family, marital status, dietary habit, monthly income etc. The clinical variables were duration, frequency, type, contributing factors of low back pain and measures adopted to manage low back pain. The investigator assessed the pre interventional level of low back pain by using numerical pain scale and low back pain disability by Modified Roland Morris low back pain index scale.

**Throughput**

Throughput is an action needed to accomplish the desired task. It refers to the use of different operational procedures implemented within the process of system. The investigator administered Acharya Technique every day 2 times for 15 consecutive days for 10-15 minutes along with regular self care measures by nurses in experimental group and only self care measures were followed by nurses in control group.

**Output**

**Output** is any information that leaves the system and enters to the environment. In this study, the investigator assessed the post interventional level of low back pain and low back pain disability using the same scales on $16^{th}$ day for both experimental and control group. The outcome shows either reduction or no reduction of low back pain.

**Feedback**

**Feedback** is the result of output. In this study if output is reduced level of low back pain, the investigator insists the nurses to continue Acharya technique, if output is no reduction of level of low back pain, reassessment and modification of the intervention needs to be done.

# CHAPTER II

# REVIEW OF LITERATURE

This chapter deals with selected studies and articles which are related to the objectives of the proposed study. For the present study an extensive review of literature relevant to study was undertaken and is presented under the following

**PART I**

1. General information on Acharya Technique

2. Studies related to prevalence of low back pain among nurses.

**PART II**

1. The studies related to Acharya Technique on low back pain

2. Studies related to low back pain and benefits of stretching exercises.

**PART I**

## 1. General information on Acharya Technique

"Three minutes a day, keeps the low back pain away"

The Acharya Technique was introduced by Dr. S M Acharya, Neurosurgeon, member of Nature Cure Cell of the Pune –based Save India Association (SIA) has been working in this Acharya Technique to revive the people by natural instincts and behavioural patterns to mitigate from aches and pains. This Acharya Technique is a simple, self cure, stretching exercise which involves flexor, extensor and oblique muscle consists of

five steps each of half minute duration to reduce low back pain . As compared to allopathic medicines, this nature cure exercise has many benefits.

**Benefits**

- Relief from backache, headache and migraines
- Improvement in sleeping patterns
- Warding off or reducing prostate problems
- Reduction in varicose veins
- Minimize premenstrual tensions and muscle cramps

Thus, even healthy people can benefit from this Acharya Technique to maintain a healthier, balanced and active life style. Since it reduces the low back pain within few weeks without medicines and without any surgical procedure it was recommended by orthopedicians.

## 2. STUDIES RELATED TO PREVALENCE OF LOW BACK PAIN AMONG NURSES

Davis, G.K. & Kotowski, E.S. (2015**)** conducted the comprehensive study to assess the prevalence of musculoskeletal disorders in long term care facilities and home health care among 132 nurses. The study results revealed that low back pain for nurses was highest followed by shoulder and neck pain .This study also concluded that 90% of the nurses develop low back pain as major musculoskeletal disorder.

Priyanka, V. (2015) conducted the study to assess the incidence of low back pain among nurses at 21 health care facilities in Mumbai and Thane. It revealed that nearly 90% of nurses working in ICU have complaints of low back pain. The study also revealed physical straining, long duty timing and deprivation of planned break were the contributing factors of low back pain among nurses .

Amany, M. et al. (2015) conducted the epidemiological study at Kolkatta to assess the prevalence of low back pain among nurses working in ICU. The study shown that prevalence of low back pain among nurses was 79.3%. The highest incidence found in specialty ICU nurses like nurses who works in pediatric and nephro ICU unit. A higher incidence of low back pain was associated with lifting heavy weights, followed by twisting, prolonged standing, walking for long distance and bending forward.

Smedley, J.et al. (2014) conducted the prospective cohort study to assess the incidence of low back pain in nurses. The data collected among 962 nurses working in OT at Southampton University hospital, Netherlands'. The study results revealed that 88% of nurses had low back pain. This incidence is not only a burden for nurses but also a substantial cost to employing hospitals in terms of lost efficiency, time, training and claims for industrial injuries.

El-soud, et al .( 2014) conducted an epidemiological study on prevalence of low back pain among 766 nurses working in Zagazing University Hospitals. The study shown that highest incidence of low back pain, 95% was found among nurses working in the ICU, 64% among nurses in outpatient clinics. A high incidence of low back pain was associated with lifting heavy loads followed by twisting, prolonged standing, prolonged sitting, walking for long distance and bending forward.

Adhikari, S & Dhakal, G. (2014) conducted the cross sectional study among 50 nurses to assess the prevalence, causes of low back pain and its impact among nurses working in Sahid Gangalal National Heart Centre, India. The study results revealed that 78% nurses were suffering from low back pain. Majority of the (88%) nurses were married compared to unmarried (69%). The perceived causes of LBP were prolonged standing (82%), heavy physical workload, frequent bending, twisting (51%). Due to low back pain 44% were not able to perform their job properly, 33% became less productive, 28% had restriction in work and 26% could not provide quality care to the patient.

Nagwa, M. et al. (2012) conducted a study on frequency and influencing factors of low back pain among nurses working in OT units at Mumbai, India. The results revealed that 84.2% of the nurses experienced low back pain . It was determined that nurses who remained standing for long periods of time, performed interventions that required bending forward, lifted and repositioned patients experienced more pain.

Deepak, B. A & Iyer, C. et al. (2012) conducted the study to assess the Work Related Musculoskeletal Disorders (WRMDs) among OT nurses in rural Maharashtra, India. A multicentre survey revealed that 89.1% nurses had experienced work related musculoskeletal pain or discomfort at some time in their lives. Among WRMDs the low back pain (48.2%) was highest followed by shoulder pain (34.6%), neck pain (33.1%) and knee pain (29.0%). Certain risk factors like working in same position for long time, bending, twisting, lifting and treating excessive number of patients were strongly associated with WRMDs.

Cho, S.H & June, K.J. (2011) conducted a study on low back pain and work related factors among 1345 nurses in intensive care units in 22 South Korean hospitals. Back pain prevalence was measured. The mean age of nurses was 27.2% years. Overall, 90.3% of nurses had back pain atleast once a month 21.9% always had low back pain, 40.7% had pain once a week and 27.7% once a month. Only 18.3% had received the medical treatment. The related factors revealed that inadequate staffing, working 6 or more night shifts per month, nurses with 2-4 years of working experience in intensive care units had the greatest probability.

Wong,T.S .et al.( 2011**)** conducted the study to reveal the prevalence and risk factors associated with low back pain among 493 health care providers in a district hospital. Demographic characteristics shown that 78.1% were women, 83.2% were between the age group of 20 – 40 years old, The staff nurses rate was highest (53.2%) followed by doctors (20.9%). The risk factors identified were bad body posture and lifting objects or patients.

**PART II**

**1. STUDIES RELATED TO ACHARYA TECHNIQUE ON LOW BACK PAIN**

Anand, M & Tamizkodi (2014) conducted the study to assess the efficacy of Acharya Technique on low back pain among 30 industrial workers at Erode using purposive sampling technique. The study results shown that 36.7% participants had complete discomfort by low back pain during pretest "After administration of Acharya Technique", 40% of participants had only mild discomfort due to low back pain ,thus showing the effectiveness of this technique. The study also suggested to include

Acharya Technique in continuing educational programme on wider scale and accept it as a measure followed to get rid of low back pain.

## 2. STUDIES RELATED TO LOW BACK PAIN AND BENEFITS OF STRETCHING EXERCISES.

Nair, R.R & Silva, D.F. (2014) conducted the quasi experimental study to assess the effectiveness of back strengthening exercise on low back pain among 393 nursing students from selected colleges in Karnataka, South India. The study revealed that majority 129 (54%) student nurses had mild low back pain and 145 nursing students had moderate disability and 19 nursing students had severe low back pain. The study also concluded that majority 120students expressed that performing activities of personal hygiene for patients was the main cause for low back pain and back strengthening exercise found to be effective in reducing low back pain and improving the functional performance.

Konstantinou, K. et al. (2013) conducted a study to investigate the immediate effects of flexion Mobilizations With Movement Techniques (MWMTs) on spinal range of motion among 26 subjects with Low back pain. Subjects received flexion MWMTs intervention and a placebo intervention in a randomised order. The study findings shown statistically significant increase in immediate spinal mobility with no reduction in level of low back pain .

Moutzouri, M. et al.(2012) conducted the double blinded study to compare the effects of the Mulligan Sustained Natural Apophyseal Glides (SNAG) mobilization versus sham mobilization on lumbar flexion among 49 subjects with low back pain. The subjects were randomly divided into two groups. One group received SNAG mobilization and another group received sham mobilization at the level of L3 & L4 spinal levels. They concluded that Sustained Natural Apophyseal Glides (SNAG) mobilization demonstrated significant differences in lumbar flexion when compared to sham mobilization.

Bronfort, G. et al. (2011) conducted an evidence based systemic review on identifying the efficacy of Spinal Manipulative Therapy (SMT) and mobilization for management of low back pain and neck pain among 43 samples. The study concluded that SMT and mobilization as a viable option for the treatment of both low back pain and neck pain.

Snook, S.H. et al. (2011) conducted a randomized control study on 85 subjects with recurrent non specific low back pain .The samples in experimental group received early morning lumbar flexion exercise for 6 months and the control group did'nt receive any intervention. The study concluded that lumbar flexion in the early morning is a form of self care with potential for reducing low back pain.

Elnaggar, I.M. et al.(2011) conducted a study to compare the effects of spinal flexion (Group I) and extension (Group II) exercises and thoracolumbar spinal mobility on low back pain among 260 samples with chronic mechanical low back pain. The samples were divided into two equal groups and interventions given .One group received spinal flexion and extension and another group received thoracolumbar spinal mobility. The results revealed

that both the groups had significant reduction in low back pain after intervention. They concluded that spinal flexion exercises had an advantage in increasing the sagital mobility within a short period of time.

Goodwell, M. et al. (2011) conducted a self- control cross over study on the effects of lumbar PA (Posterio –Anterior) mobilization versus spinal mobilization on low back pain among 26 subjects . The subjects were divided into 2 groups randomly. One group received PA mobilization another group received spinal mobilization. The study concluded that lumbar PA mobilization is useful intervention in patients with low back pain.

Chiradejnant, A. et al. (2010) conducted a prospective comparative study among 140 individuals to find out the efficacy of therapist- selected versus randomly selected mobilization techniques for the treatment of low back pain. The subjects were then randomly allocated to one of two groups. One group received the preferred mobilisation techniques as selected by the therapist and the other group received a randomly assigned mobilisation technique. The results confirmed that lumbar mobilisation treatment has an immediate effect in both therapist selected versus randomly selected among samples in relieving low back pain.

Dettori, J. et al. (2010) in their study, compared the effects of flexion and extension back exercises and postures among 149 subjects with acute low back pain. These subjects were divided into 3 groups and received flexion exercises and posture, extension exercises and posture and no exercises and posture for 8 weeks. Outcomes were assessed 1, 2, 4 & 8 weeks after treatment onset. They concluded that flexion exercises and posture was effective for acute non specific low back pain.

# CHAPTER III

# METHODOLOGY

The study was undertaken to assess the effectiveness of Acharya Technique on low back pain among nurses working in ICU and OT at selected hospitals Chennai .

This chapter included research design, settings of the study, population, sampling technique, criteria for selection of samples, sample size, description of the tool, validity of the tool, pilot study and procedure for data collection and plan for data analysis.

## SCHEMATIC REPRESENTATION OF METHODOLOGY

**RESEARCH APPROACH**

Experimental in nature

**RESEARCH DESIGN**

Quasi experimental design

**SETTING OF THE STUDY**

VHS, Chennai-113.Dr.KMH, Pallikararai, Chennai.

**TARGET POPULATION**

Nurses with low back pain, working in ICU and OT

**SAMPLES**

Nurses who fulfilled the inclusion criteria

**SAMPLING TECHNIQUE**

Non Probability Purposive sampling technique

**SAMPLE SIZE**

60 nurses (30- experimental and 30-control {15-ICU and15-OT in each group }

**DATA COLLECTION METHOD & TOOL**

Self reporting mthod: Self administered questionnaire

**DATA ANALYSIS**

Descriptive(frequency, mean, SD) and inferential statistics ( t test, Chi square).

**Figure 2: Schematic Representation of Methodology**

## RESEARCHAPPROACH

Research approach used in this study was experimental in nature

## RESEARCH DESIGN

The Quasi-experimental design was used for this study.

| Group | O1 | X | O2 |
|---|---|---|---|
| Experimental | Pre assessment of low back pain and low back pain disability | Acharya Technique | Post assessment of low back pain and low back pain disability |
| Control | Pre assessment of low back pain and low back pain disability | ---- | Post assessment of low back pain and low back pain disability |

O1=Experimental group O2=Control group X=Intervention

## VARIABLES OF THE STUDY

### INDEPENDENT VARIABLE

The independent variable in the study was Acharya Technique (Stretching exercise)

### DEPENDENT VARIABLES

The dependent variables of this study were low back pain ,low back pain disability among nurses working in ICU and OT

## SETTING OF THE STUDY

This study was conducted in the following settings.

### PILOT STUDY

Voluntary Health Services Multi-Speciality Hospital and Research Institute.

It is a 465 bedded tertiary teaching hospital which is located at Taramani, Chennai-113.

### MAIN STUDY

Dr .Kamatchi Memorial Hospital, It is a 250 bedded Multi super –speciality tertiary care hospital which is located at Pallikarna , Chennai.

## POPULATION OF THE STUDY

The population for this study consisted of both female and male nurses working in ICU and OT with complaints of low back pain within 2 years during the period of study.

## SAMPLES OF THE STUDY

Both female and male nurses working in ICU and OT with complaints of low back pain within 2years, who fulfilled the inclusion criteria were selected as samples.

## CRITERIA FOR THE SELECTION OF SAMPLE

### INCLUSION CRITERIA

Nurses:

1. both female and male registered nurses who were in the age group of 25 to 55 years.

2. having complaints of low back pain within two years.

3. who knows English and Tamil.

4. working in ICU and OT for more than 2 years.

### EXCLUSION CRITERIA

1. Previous/recurrent low back pain episodes more than two years.

2. Spinal or other orthopedic pathology and surgical intervention.

## SAMPLE SIZE

The sample size was 60. The samples were distributed as 30- experimental group (15- ICU,15—OT), 30- control group (15-ICU, 15-OT).

| Setting | Sample size | Experimental Group | | Control Group | |
|---|---|---|---|---|---|
| Dr.Kamatchi Memorial hospital | 60 | ICU | OT | ICU | OT |
| | | 15 | 15 | 15 | 15 |

## SAMPLING TECHNIQUE

The sampling technique used in this study was non probability purposive sampling technique . A total of 60 nurses were selected, in that 30 nurses from ICU which included 15 nurses in experimental group and 15 nurses in control group, 30 nurses from OT which included 15 nurses in experimental group and 15 nurses in control group.

## DATA COLLECTION METHOD

Self report method was used to collect the data. The self administered tool consisted of the following,

1.Semi structured questionnaire for collection of demographic and clinical data

2. Numerical pain assessment scale ( Wong Baker 2001)

3. Modified Roland Morriss Disability index (2012)

## DESCRIPTION OF DATA COLLECTION TOOL

The data collection tool consisted of two parts

**PART A**

(i) It consists of 15 semi structured questions to collect the demographic data of nurses such as age gender, BMI, religion, monthly income, marital status, type of family, educational qualification, present working area, total years of experience, designation, types and number of cases nursed and average number of hours working in ICU and OT.

(ii) It consisted of 12 semi structured questions to collect the clinical data of the nurses such as type, duration, frequency, factors contributing, perception of low back pain, adoption of measures, awareness about stretching exercises and duration of exercise per day .

**PART B**

It consists of two sections such as assessment of low back pain and low back pain disability index

(i) **Assessment of level of low back pain:** Numerical Rating Pain Scale (NRS) was used to assess the low back pain. It is the standardized tool used to assess the categories of pain such as mild, moderate, severe. It is 11 point numeric scale (0-10) with 0- representing one pain extreme as 'no pain' and 10- representing the other extreme ' pain as worst pain ' or severe pain.

(ii) **Assessment of low back pain disability index:** Roland Morris Low back pain Disability scale was used. It is the standard tool used with modification to assess the level of low back pain disability among nurses working in ICU and OT. The tool composed of 24 items with yes/ no options .

## SCORING AND INTERPRETATIONS

### (i) Numerical Rating Pain Scale

The scale was showed to the nurses to assess the level of low back pain .Based on the number chosen by the nurses in the scale grading was given .

The score ranged from 0-10

The level of low back pain was graded as follows,

| Level of low back pain | Grading |
|---|---|
| No pain | 0 |
| Mild pain | 1-3 |
| Moderate pain | 4-6 |
| Severe pain | 7-10 |

### (ii) Modified Roland Morris Low back Pain Disability Index (2012)

It composed of 24 Yes/No items to assess low back pain disability. In this, each Yes option item carries "one" score and for No option carries "0" score. The minimum score is zero which indicated "No disability'' and the maximum score is 24 which indicated " Maximum disability''

$$\text{Disability index} = \frac{\text{Obtained Score by individual nurse}}{\text{Total score}} \times 100$$

The level of low back pain disability index was graded as follows,

| Level of low back pain disability | Grading |
|---|---|
| No disability | 0-<25 % |
| Mild disability | 25-<50 % |
| Moderate disability | 50-<75 % |
| Severe disability | 75-100 % |

## VALIDITY OF THE TOOL

The tool used in this study was validated by a Neurologist and experts in the field of Medical Surgical Nursing.

## RELIABILITY OF THE TOOL

The reliability of the tool was calculated by inter-rater method. Reliability correlation co-efficient r –value was 0.86 for Numerical Rating pain Scale and 0.84 for Roland Morris low back pain disability index scale .

## PROTOCOL FOR INTERVENTION

Acharya Technique consists of simple natural movements and stretching exercise each step for a half a minute.

**PRE PREPARATION**

Preliminary preparation of the unit was done by arranging separate room with beds for performing exercise. Formal intimation to ward incharges was given to assemble staff nurses as convenient groups and asked the nurses to lie on bed and take a deep breath and get relaxed.

**STEP I**

Instructed the nurses to lie on bed with palms under head by looking at the ceiling, pull feet towards them with jerk by keeping the heels firmly in the bed. The nurses were asked to remain in that same position for few seconds and take the feet sideways. Left foot to the left side and right foot to right side. The nurses were asked to bring feet together in a circular motion towards the centre and to straight the legs holding feet together and relax in that position for a few seconds and repeat this for ten times.

**STEP II**

Instructed the nurses to lie with palms under head. Pull the feet towards them with a slight jerk by holding the feet together. Take both the feet straight downwards with a similar jerk. Take the feet sideways right leg to the right side and left leg to the left side and the nurses were asked to bring their feet together in a circular motion , straighten the legs and relax for some time and repeat this for 10-15 times.

**STEP III**

Instructed the samples to pull both the feet towards them in a sudden jerk. Asked to hold them together tightly for a few seconds, slowly release and straighten the legs and come to the original position and do it for 10- 15 times.

**STEP IV**

Instructed the nurses to part the feet (4-6 inches) and pull the feet towards them half way. Suddenly pull both the feet upwards and strike the knees gently in a few seconds. Release the pressure by separating the knees, straighten the legs down to the original position.

**STEP V**

The nurses were asked to adjust the position in the bed in such a way that the feet touches the wall or the wooden plank or rod of the cot and instructed to close eyes and stretch and becoming longer and longer. Instructed to continue to push against the plank or wall which will push half an inch or so backward. Point the toes downwards as if the entire body is in a straight line. Asked them to turn on to the side and raise upto the sitting position by supporting hands.

**POST PROCEDURE CARE**

The investigator instructed the nurses to do this stretching exercise twice daily for 15 days to reduce low back pain and also explained to follow the do's and don'ts of Acharya Technique.

## HUMAN RIGHTS AND ETHICAL CONSIDERATION

The study was approved by the ethical committee constituted in the college and in Dr. Kamatchi Memorial Hospital. Permission was obtained from the head of the institution, nursing superintendent and incharges of ICU and OT to conduct the study. Informed consent was obtained from the participants who participated in the study.

## PILOT STUDY

The pilot study was conducted in the ICU and OT at Voluntary Health Service Hospital, Chennai from 14.05.2015 -24.05.15 after obtaining permission from the Medical Director and Clinical Academic Affairs. Totally 8 nurses 4 from ICU and 4 from OT who fulfilled the inclusion criteria were selected using non probability purposive sampling technique and assigned to experimental and control group.

After establishing rapport with nurses, the purpose of research study was explained. The consent for participation in the study was obtained from the samples. For both experimental and control group, data was collected by using the semi structured questionnaire on demographic and clinical data and level of low back pain, low back pain disability was assessed for both group. For the experimental group the investigator demonstrated Acharya Technique and continued the stretching exercises for 7 consecutive days under the supervision of the investigator .The post test level of low back pain and low back pain disability was assessed by using the same scale on $8^{th}$ day. The control group was also observed for 7 days and post test level of low back pain and low back pain disability was assessed on day 8 using the same scale.

## PILOT STUDY RECOMMENDATION

Based on the pilot study findings, after obtaining permission from research committee members, few modifications were made in the demographic variables. The details of the correction were:

**In part A:** Q.NO: 3. BMI- Options were added in original question , since BMI is also the contributing factors for low back pain among nurses ,the options added for BMI were,

a) Underweight

b) Normal

c) Overweight

The above recommendations were incorporated by the investigator for the main study. From the pilot study, it was concluded that the tool was feasible and selection of sample was easy. There was significant difference between pre and post test on low back pain and low back pain disability

## DATA COLLECTION PROCEDURE

The main study was conducted from 09. 06. 15 to 28.06.15 between 9 am to 5pm at Dr. Kamatchi Memorial Hospital .Permission was obtained from Medical and Nursing Superintendent, ethical clearance committee, ICU and OT incharges from Dr. KMH. Totally 60 nurses who were in the morning and afternoon shift in ICU and OT, fulfilled the inclusion criteria were selected as samples of the study using non –probability purposive sampling technique. Among 60 nurses , 30 nurses in experimental group (15-ICU,15-OT) and 30 nurses in control group(15-ICU,15-OT) were assigned using simple lottery method .

After self introduction, the purpose of the study was explained and informed consent was obtained from nurses. As pre assessment, demographic and clinical data was collected by using self administered tool. The pre intervention level of low back pain and low back pain disability was assessed for both experimental and control group. For the experimental group, after pre assessment Acharya Technique was demonstrated by the investigator on day 1, then the nurses did the exercise two times a day. The samples did the stretching exercises morning time under the supervision of investigator and in evening did by themselves for 15 consecutive days. The post interventional low back pain, low back pain disability was assessed for experimental group on 16$^{th}$ day by using same scale. The control group was also observed and for 15 consecutive days the level of low back pain and low back pain disability was assessed on 16$^{th}$ day by using same scale.

## PLAN FOR DATA ANALYSIS

The results were computed by using descriptive and inferential statistics.

## DESCRIPTIVE ANALYSIS

(i) Frequency and percentage distribution was used to describe demographic and clinical variables of the samples with low back pain.

(ii) Frequency and percentage distribution was used to assess the level of low back pain and low back pain disability.

(iii) Mean and Standard deviation was used to assess the pre and post test level of low back pain among nurses in ICU and OT.

## INFERENTIAL STATISTICS

1. Effectiveness of the intervention was determined by using paired ''t " test and student independent 't' test.

2. Chi square test was used to associate the post interventional level of low back pain with demographic and clinical variables in the experimental group.

# CHAPTER –IV

# DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis of the data collected from the selected 60 samples. It is a study to assess the effectiveness of the Acharya Technique on low back pain among nurses working in ICU and OT at selected hospitals, Chennai. Descriptive and inferential statistics was used to analyze the data.

The data obtained was classified and presented under the following sections.

**SECTION I**

Frequency and percentage distribution of the demographic variables among nurses with low back pain working in ICU and OT.

**SECTION II**

Frequency and percentage distribution of the clinical variables among nurses with low back pain working in ICU and OT.

**SECTION III**

Frequency and percentage distribution of the pre and posttest of the level of low back pain and low back pain disability among nurses working in ICU and OT.

**SECTION IV**

Comparison and effectiveness of Acharya Technique on low back pain and low back pain disability among nurses working in ICU and OT

**SECTION V**

Association between post test level of low back pain and low back pain disability among nurses working in ICU and OT with demographic and clinical variables of experimental group.

# SECTION -I

## FREQUENCY AND PERCENTAGE DISTRIBUTION OF THE DEMOGRAPHIC VARIABLES AMONG NURSES WITH LOW BACK PAIN WORKING IN ICU AND OT.

**Table 1.1: Frequency and percentage distribution of the demographic variables of the nurses based on age, gender, BMI and religion.**

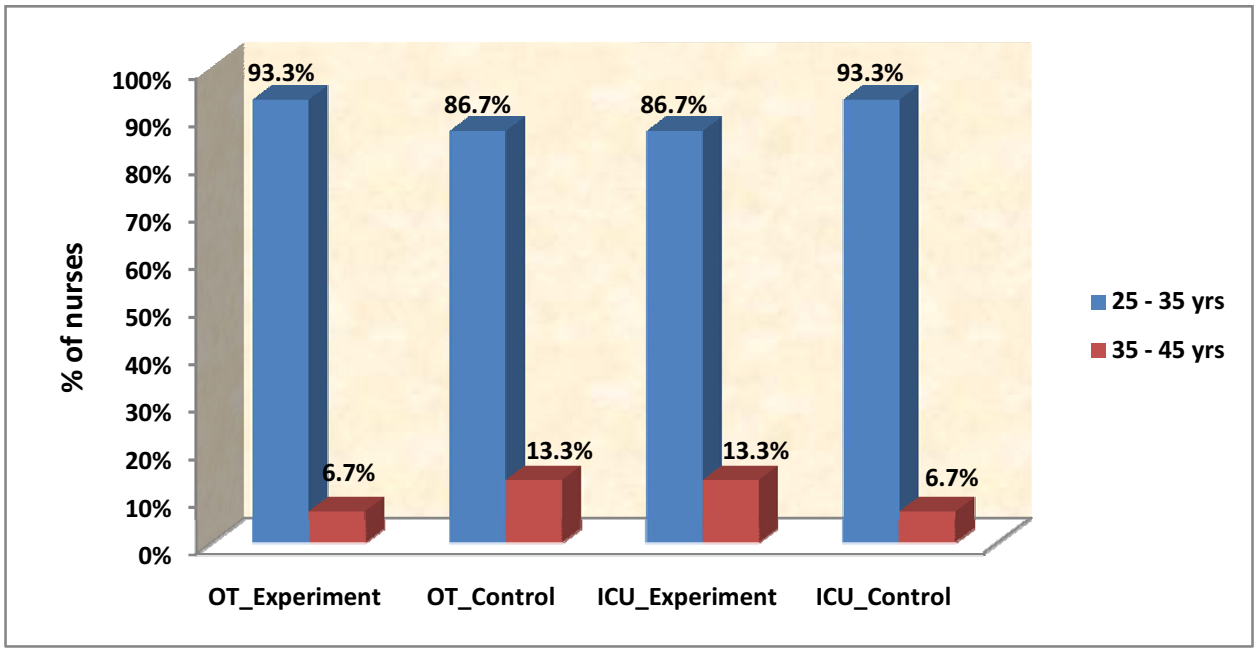
**N=60 O1=30, O2=30**

| S. No | Demographic variables | Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Experimental group | | | | Control Group | | | |
| | | ICU | | OT | | ICU | | OT | |
| | | F | P(%) | F | P(%) | F | P(%) | F | P(%) |
| **1** | Age | | | | | | | | |
| | a. 25- <35years | 13 | 86.7 | 14 | 93.3 | 14 | 93.3 | 13 | 86.7 |
| | b. 35-<45 years | 2 | 13.3 | 1 | 6.7 | 1 | 6.7 | 2 | 13.3 |
| | c. 45-<55 years | - | - | - | - | - | - | - | - |
| **2** | Gender | | | | | | | | |
| | a. Male | 6 | 40 | 2 | 13.3 | 5 | 33.3 | 4 | 26.7 |
| | b. Female | 9 | 60 | 13 | 86.7 | 10 | 66.7 | 11 | 73.3 |
| **3** | BMI | | | | | | | | |
| | a. Under weight | 12 | 80.0 | 11 | 73.3 | 13 | 86.7 | 9 | 60.0 |
| | b. Normal | 2 | 13.3 | 3 | 20.0 | 1 | 6.7 | 5 | 33.3 |
| | c. Over weight | 1 | 6.7 | 1 | 6.7 | 1 | 6.7 | 1 | 6.7 |
| **4** | Religion | | | | | | | | |
| | a. Hindu | 4 | 26.7 | 8 | 53.3 | 3 | 20.0 | 9 | 60.0 |
| | b. Christian | 9 | 60.0 | 6 | 40.0 | 10 | 66.7 | 4 | 26.7 |
| | c. Muslim | 2 | 13.3 | 1 | 6.7 | 2 | 13.3 | 2 | 13.3 |
| | d. Others | - | - | - | - | - | - | - | - |

O1= Experimental group, O2= Control group

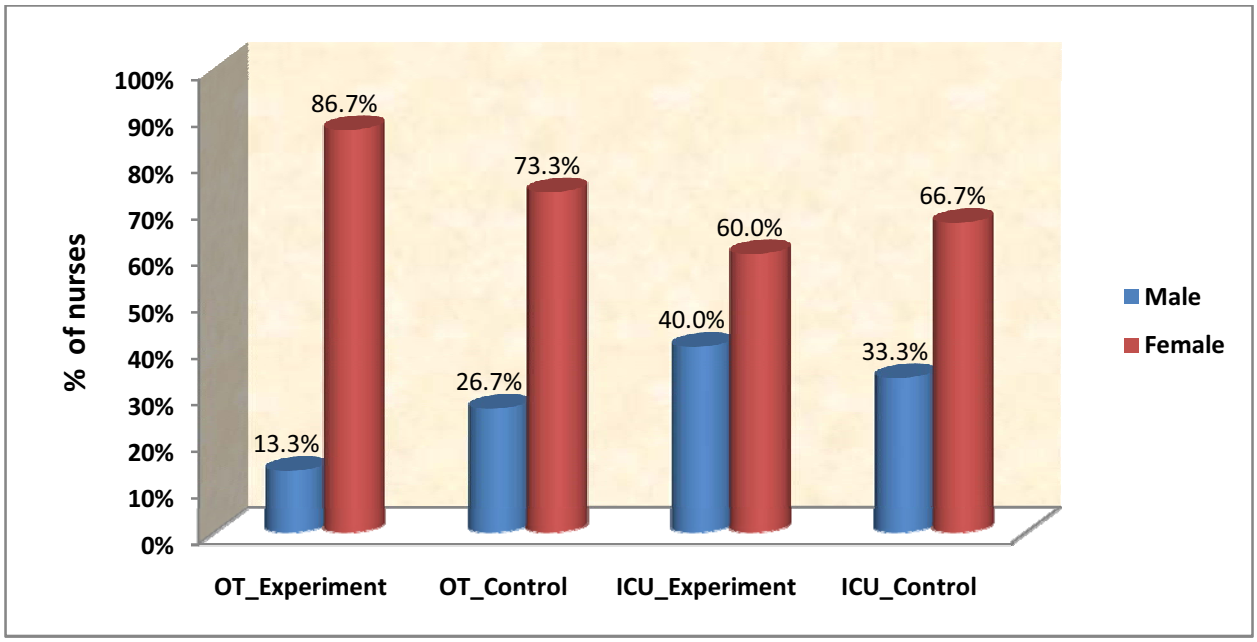
Table 1.1 reveals that in experimental group majority 13 ( 86.7%) nurses in ICU and in OT 14 (93.3%) were in the age group of 25-< 35 years. Nine (60%) nurses in ICU and 13 (86.7%) nurses in OT were females. Twelve ( 80.0%) nurses in ICU and 11 (73.3%) nurses in OT were underweight. Nine (60.0%) nurses in ICU were Christians and 8 (53.3%) nurses in OT were Hindus.

In control group majority of the nurses in ICU, 14 (93.3%) and 13(86.7%) nurses in OT were in the age group of 25-<35 years. Ten (66.7 %) nurses in ICU and 11(73.3%) nurses in OT were females .Thirteen (86.7%) nurses in ICU and 9 (60.0%) nurses in OT were underweight. Ten (66.7%) nurses in ICU were Christians and 9 (60.0%) nurses in OT were Hindus.




**AGE DISTRIBUTION**

**Fig No:2 Percentage distribution of nurses with low back pain in experimental and control group based on age**




**GENDER DISTRIBUTION**

**Fig No 3: Percentage distribution of nurses with low back pain in experimental and control group based on gender**

**Table 1.2:Frequency and percentage distribution of the demographic variables of the nurses based on monthly income, dietary pattern, marital status and type of family.**

**N=60 O1=30, O2=30**

| S. No | Demographic variables | Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Experimental group | | | | Control Group | | | |
| | | ICU | | OT | | ICU | | OT | |
| | | F | P(%) | F | P(%) | F | P(%) | F | P(%) |
| **5** | Monthly income | | | | | | | | |
| | a. 5000-10000 | 12 | 80.0 | 10 | 66.7 | 11 | 73.3 | 9 | 60.0 |
| | b. 10001-15000 | 2 | 13.3 | 4 | 26.6 | 3 | 20.0 | 4 | 26.7 |
| | c. 15001-20000 | 1 | 6.7 | 1 | 6.7 | 1 | 6.7 | 2 | 13.3 |
| | d. 20001-25000 | - | - | - | - | - | - | - | - |
| **6** | Dietary pattern | | | | | | | | |
| | a. vegetarian | 4 | 26.7 | 2 | 13.3 | 2 | 13.3 | 3 | 20.0 |
| | b. Non vegetarian | 11 | 73.3 | 13 | 86.7 | 13 | 86.7 | 12 | 80.0 |
| **7** | Marital status | | | | | | | | |
| | a. Married | 6 | 40.0 | 7 | 46.7 | 4 | 26.7 | 7 | 46.7 |
| | b. Un married | 9 | 60.0 | 8 | 53.3 | 11 | 73.3 | 8 | 53.3 |
| | c. Widow/Widower | - | - | - | - | - | - | - | - |
| | d. Divorced/Separated | - | - | - | - | - | - | - | - |
| **8** | Type of family` | | | | | | | | |
| | a. Nuclear family | 9 | 60.0 | 11 | 73.3 | 10 | 66.7 | 10 | 66.7 |
| | b. Joint family | 6 | 40.0 | 4 | 26.7 | 5 | 33.3 | 5 | 33.3 |

O1= Experimental group, O2= Control group

Table 1.2 reveals that in experimental group majority of nurses in ICU 12 (80.0%) and 10 (66.7%) nurses in OT were earning Rs. 5000-10000 per month. Eleven (73.3%) nurses in ICU and 13(86.7%) nurses in OT were non vegetarian. Nine ( 60.0%) nurses in ICU and 8 (53.3%) nurses in OT were unmarried. Nine (60.0%) nurses in ICU and 11 (73.3%) nurses in OT belonged to nuclear family.

In control group majority 11 (73.3%) nurses in ICU and 9 (60.0%) nurses in OT were earning Rs 5000-1000. Thirteen (86.7%) nurses in ICU and 12 (80.0%) nurses in OT were non vegetarian. Eleven (73.3%) nurses in ICU and 8 (53.3%) nurses in OT were unmarried . Ten (66.7%) nurses in ICU and OT belonged to nuclear family.

**Table 1.3: Frequency and percentage distribution of the demographic variables of the nurses based on educational qualification, present working area, total years of clinical experience and designation .**

**N=60 O=30 O2=30**

| S. No | Demographic variables | Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Experimental group | | | | Control Group | | | |
| | | ICU | | OT | | ICU | | OT | |
| | | F | P(%) | F | P(%) | F | P(%) | F | P(%) |
| 9 | Educational qualification | | | | | | | | |
| | a. Diploma in nursing | 8 | 53.3 | 11 | 73.3 | 7 | 46.7 | 13 | 86.7 |
| | b. Bachelor of nursing | 7 | 46.7 | 4 | 26.7 | 8 | 53.3 | 2 | 13.3 |
| | c. Master of nursing | - | - | - | - | - | - | - | - |
| 10 | Present working area | | | | | | | | |
| | a. ICU | 15 | 100 | - | - | 15 | 100 | - | - |
| | b. OT | - | - | 15 | 100 | - | - | 15 | 100 |
| 11 | Total years of clinical experience in ICU/OT | | | | | | | | |
| | a. <3years | 5 | 33.3 | 7 | 46.7 | 3 | 20.0 | 3 | 20.0 |
| | b. 3-6years | 6 | 40.0 | 5 | 33.3 | 10 | 66.7 | 7 | 46.7 |
| | c. >6years | 4 | 26.7 | 3 | 20.0 | 2 | 13.3 | 5 | 33.3 |
| 12 | Designation | | | | | | | | |
| | a. Junior staff nurse | - | - | 5 | 33.3 | - | - | 2 | 13.3 |
| | b. Staff nurse | 8 | 53.3 | 8 | 53.3 | 10 | 66.7 | 10 | 66.7 |
| | c. Shift incharge | 5 | 33.3 | 1 | 6.7 | 1 | 6.7 | 1 | 6.7 |
| | d. Inchage | 1 | 6.7 | 1 | 6.7 | 3 | 20.0 | 2 | 13.3 |
| | e. Supervisor | 1 | 6.7 | - | - | 1 | 6.7 | - | - |

O1 =Experimental group, O2= Control group

Table 1.3: Shows that in experimental group 8 (53.3%) in ICU and 11 (73.3%) nurses in OT had qualification of Diploma in nursing .Six (40.0%) nurses in ICU were having 3-6 years of experience and 7 (46.7%) nurses in OT were having <3 years of experience. Eight (53.3%) nurses in ICU and OT were working as staff nurse.

In control group 7 (46.7%) in ICU and 13 (86.7%) nurses in OT had qualification of Diploma in nursing. Ten (66.7%) nurses in ICU and 7 (46.7%) nurses in OT were having 3-6 years of experience. Ten (66.7%) nurses in ICU and OT were working as staff nurse.

**Table 1.4: Frequency and percentage distribution of the demographic variables of the nurses based on type of cases nursed, number of cases cared and average number of hours work in ICU/OT per day.**

**N=60 O1=30, O2=30**

| S. No | Demographic variables | Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Experimental group | | | | Control Group | | | |
| | | ICU | | OT | | ICU | | OT | |
| | | F | P(%) | F | P(%) | F | P(%) | F | P(%) |
| **13** | Types of cases nursed in ICU/Operation Theatre | | | | | | | | |
| | a. General cases | 6 | 40.0 | 13 | 86.7 | 6 | 40.0 | 12 | 80.0 |
| | b. Speciality cases | 9 | 60.0 | 2 | 13.3 | 9 | 60.0 | 3 | 20.0 |
| **14** | No of cases cared per Day | | | | | | | | |
| | a. 0-1 case | 2 | 13.3 | 1 | 6.7 | 1 | 6.7 | 1 | 6.7 |
| | b. 1-2 cases | 5 | 33.3 | 1 | 6.7 | 7 | 46.7 | 3 | 20.0 |
| | c. 2-3 cases | 5 | 33.3 | 4 | 56.7 | 5 | 33.3 | 2 | 13.3 |
| | d. >3 cases | 3 | 20.0 | 9 | 60.0 | 2 | 13.3 | 9 | 60.0 |
| **15** | Average number of hours work in ICU or operation theatre per day | | | | | | | | |
| | a. 6 hours | 2 | 13.3 | - | - | 3 | 20.0 | - | - |
| | b. 7 hours | 9 | 60.0 | 2 | 13.3 | 6 | 40.0 | 2 | 13.3 |
| | c. 8 hours | 3 | 20.0 | 2 | 13.3 | 5 | 33.3 | 3 | 20.0 |
| | d. More than 8 hours | 1 | 6.7 | 11 | 73.3 | 1 | 6.7 | 10 | 66.7 |

O1 =Experimental group O2= Control group

Table 1.4 Shows that in experimental group 9 (60.0%) nurses in ICU were involved in nursing speciality cases and 13 (86.7%) nurses in OT were involved in nursing general cases. Five (33.3%) nurses in ICU were nursing 1-2 cases per day and 9 (60.0%) in OT were nursing >3 cases per day. Nine (60.0%) nurses in ICU were working for 7 hours per day and 11(73.3%) in OT were working for >8 hours per day.

In control group 9 (60.0%) nurses in ICU were involved in nursing speciality cases and 12(80.0%) nurses in OT were involved in nursing general cases. Seven (46.7%) nurses in ICU were caring 1-2 cases per day and 9 (60.0%) nurses in OT were caring >3 cases. Six (40.0%) nurses in ICU were working for 7 hours per day and 10 (66.7%) nurses in OT were working for >8 hours per day.

# SECTION II

## FREQUENCY AND PERCENTAGE DISTRIBUTION OF THE CLINICAL VARIABLES AMONG NURSES WITH LOW BACK PAIN WORKING IN ICU AND OT.

**Table 2.1: Frequency and percentage distribution of the clinical variables of the nurses based on history, duration and type of LBP perceived .**

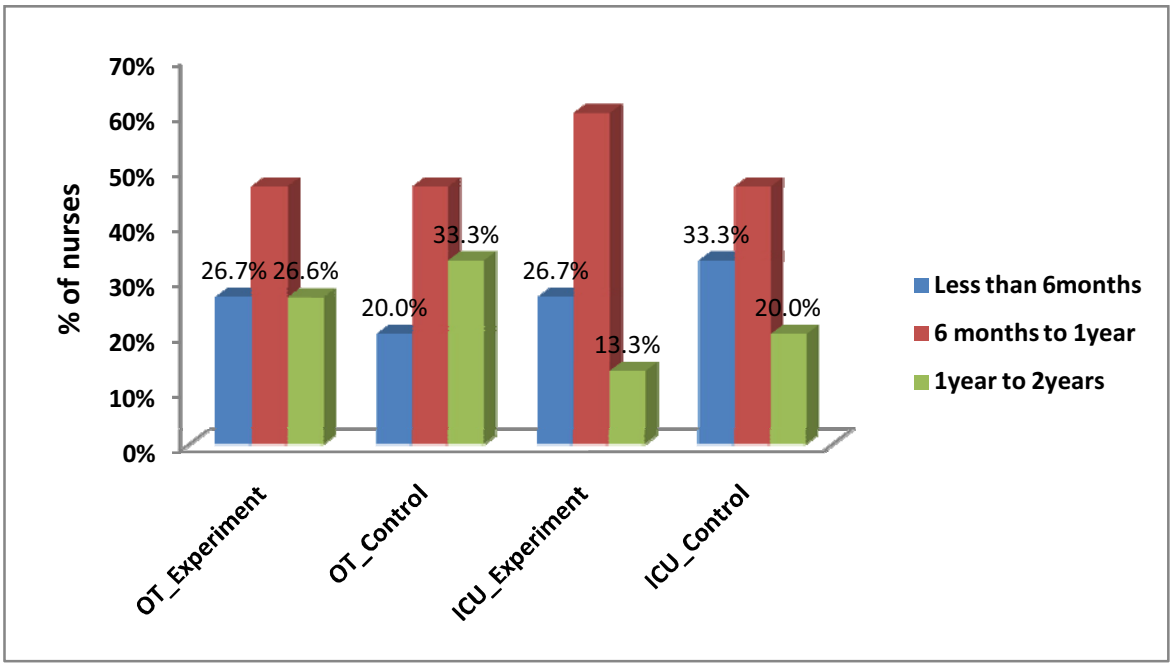
**N=60 O1=30, O2=30**

| S. No | Clinical variables | Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Experimental group | | | | Control Group | | | |
| | | ICU | | OT | | ICU | | OT | |
| | | F | P(%) | F | P(%) | F | P(%) | F | P(%) |
| 1 | Do you have low back pain? | | | | | | | | |
| | a. Yes | 15 | 100 | 15 | 100 | 15 | 100 | 15 | 100 |
| | b. No | | | | | | | | |
| 2 | How long do you have low back pain | | | | | | | | |
| | a. Less than 6months | 4 | 26.7 | 4 | 26.7 | 5 | 33.3 | 3 | 20.0 |
| | b. 6months to 1year | 9 | 60.0 | 7 | 46.7 | 7 | 46.7 | 7 | 46.7 |
| | c. 1 year to 2 year | 2 | 13.3 | 4 | 26.6 | 3 | 20.0 | 5 | 33.3 |
| 3 | What is the type of pain you perceive | | | | | | | | |
| | a. Radiating | 6 | 40.0 | 4 | 26.7 | 9 | 60.0 | 7 | 46.7 |
| | b. Nagging pain | 8 | 53.3 | 4 | 26.7 | 5 | 33.3 | 5 | 33.3 |
| | c. Throbbing | 1 | 6.7 | 2 | 13.3 | 1 | 6.7 | 1 | 6.7 |
| | d. Others | - | - | 5 | 33.3 | - | - | 2 | 13.3 |

O1 =Experimental group O2= Control group

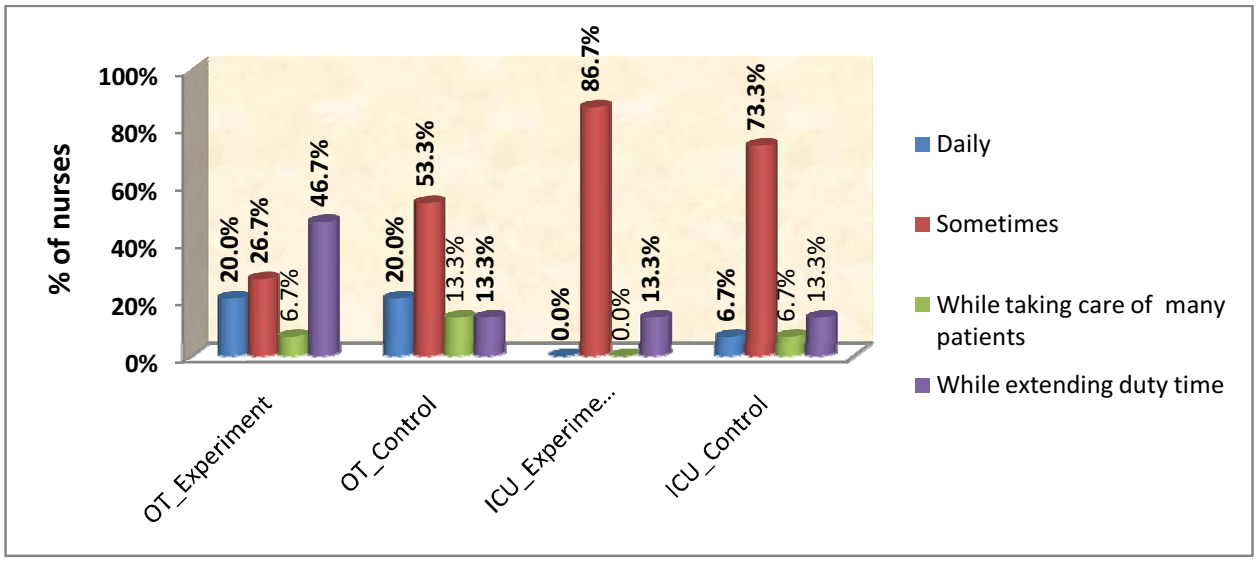
Table 2.1 reveals that all (100%) nurses in ICU and OT in both experimental and control group had low back pain . In experimental group in ICU 9 (60.0%) and in OT 7 (46.7%) nurses had low back pain for 6 months to 1 year. Eight (53.3%) nurses in ICU had nagging type and 4 (26.6%) nurses in OT had radiating type of low back pain.

In control group 7 ( 46.7%) nurses in both ICU and OT had low back pain for 6 months to 1 year .Five (33.3%) nurses in ICU perceived other types of low back pain and 7 (46.7%) nurses in OT perceived radiating type of low back pain .




**DURATION OF LOW BACK PAIN**

**Fig No:4 Percentage distribution of nurses with low back pain in experimental and control group based on duration of low back pain.**




**FREQUENCY OF LOW BACK PAIN**

**Fig No 5: Percentage distribution of nurses with low back pain in experimental and control group based on frequency of low back pain.**

**Table 2.2: Frequency and percentage distribution of the clinical variables of the nurses based on hours of, frequency and contributing factors of low back pain.**

**N=60 O1=30, O2=30**

| S. No | Clinical variables | Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Experimental group | | | | Control Group | | | |
| | | ICU | | OT | | ICU | | OT | |
| | | F | P(%) | F | P(%) | F | P(%) | F | P(%) |
| **4** | How many hours feel low back pain per day | | | | | | | | |
| | a. One hour | 2 | 13.3 | 4 | 26.7 | 5 | 33.3 | 4 | 26.7 |
| | b. 1-2 Hours | 2 | 13.3 | 6 | 40.0 | 3 | 20.0 | 4 | 26.7 |
| | c. More than 2 hours | 9 | 60.0 | 3 | 20.0 | 6 | 40.0 | 5 | 33.3 |
| | d. Throughout the day | 2 | 13.3 | 2 | 13.3 | 1 | 6.7 | 2 | 13.3 |
| **5** | How frequent you experience low back pain | | | | | | | | |
| | a. Daily | 0 | 0.0 | 3 | 20.0 | 1 | 6.7 | 3 | 20.0 |
| | b. Sometimes | 13 | 86.7 | 4 | 26.7 | 11 | 73.3 | 8 | 53.3 |
| | c. While taking care of many patients | 0 | 0.0 | 1 | 6.7 | 1 | 6.7 | 2 | 13.3 |
| | d. While extending duty time | 2 | 13.3 | 7 | 46.7 | 2 | 13.3 | 2 | 13.3 |
| **6** | Which of the following factors often contribute to low back pain | | | | | | | | |
| | a. Lifting patient | 3 | 20.0 | 2 | 13.3 | 4 | 26.7 | 1 | 6.7 |
| | b. Standing for long time | 12 | 80.0 | 12 | 80.0 | 11 | 73.3 | 13 | 86.7 |
| | c. Transferring patient from bed to chair or bed to bed | 0 | 0.0 | 1 | 6.7 | 0 | 0.0 | 1 | 6.7 |

O1 =Experimental group O2= Control group

Table 2.2 reveals that in experimental group 9 (60.0% ) nurses in ICU and 6 (40.0%) nurses in OT had low back pain for more than two hours per day and 6(40.0%) nurses had low back pain for 1-2 hours per day. Thirteen (86.7%) nurses in ICU had low back pain sometimes and 7 (46.7%) nurses in OT had low back pain while extending duty time. Twelve (80.0%) nurses in ICU and OT had low back pain while standing for a long time.

In control group 6 (40.0%) nurses in ICU had low back pain for 1-2 hours per day and 5 (33.3%) nurses in OT had low back pain for >2 hours per day. Eleven (73.3%) nurses in ICU had low back pain while standing for a long time and 8 (53.3%) in OT had low back pain sometimes and 13(86.7%) nurses in OT had low back pain while standing for long time .

**Table 2.3: Frequency and percentage distribution of the clinical variables of the nurses based on feeling and measures adopted to manage low back pain.**

**N=60 O1=30, O2=30**

| S. No | Clinical variables | GROUP | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Experimental group | | | | Control Group | | | |
| | | ICU | | OT | | ICU | | OT | |
| | | F | P(%) | F | P(%) | F | P(%) | F | P(%) |
| 7 | Low back pain makes you feel like | | | | | | | | |
| | a. Restrict activity | 6 | 40.0 | 10 | 66.7 | 7 | 46.7 | 7 | 46.7 |
| | b. Transfer to another area | 4 | 26.7 | 2 | 13.3 | 3 | 20.0 | 5 | 33.3 |
| | c. Changing profession | 3 | 20.0 | 1 | 6.7 | 3 | 20.0 | 1 | 6.7 |
| | d. Taking many days off/leave | 2 | 13.3 | 2 | 13.3 | 2 | 13.3 | 2 | 13.3 |
| 8 | Do you adopt any measures to manage low back pain | | | | | | | | |
| | a. Yes | 12 | 80.0 | 3 | 20.0 | 10 | 66.7 | 4 | 26.7 |
| | b. No | 3 | 20.0 | 12 | 80.0 | 5 | 33.3 | 11 | 73.3 |
| | If yes , specify which measures do you adopt | | | | | | | | |
| | a. Use pain killer | 5 | 41.7 | 1 | 50.0 | 6 | 60.0 | 2 | 100 |
| | b. Exercise and use back belt | 4 | 33.3 | 1 | 50.0 | 2 | 20.0 | | 0 |
| | c. Restrict movement at work place and home | 3 | 25.0 | | | 2 | 20.0 | | |

O1 =Experimental group O2= Control group

Table 2.3 reveals that in experimental group 6 (40.0%) in ICU and10 (66.7%) nurses in OT with low back pain felt like restricting activity. Twelve (80.0%) nurses in ICU adopted measures to manage low back pain, among them 5 (41.7%) nurses were using pain killers. Majority 12 (80.0%) nurses in OT were not adopted any measures to manage low back pain.

In control group 7 (46.7%) nurses in both ICU and OT felt like restricting the activity. Ten (66.7%) nurses in ICU adopted measures, among them 6 (60.0%) nurses were using pain killers to manage low back pain. Majority 11 (73.3%) of the nurses in OT have not adopted any measures to manage low back pain .

**Table2.4: Frequency and percentage distribution of the clinical variables of the nurses based on adopted occupational safety measures, awareness of stretching exercise (Acharya Technique).**

**N=60 O1=30, O2=30**

| S. No | Clinical variables | Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Experimental group | | | | Control Group | | | |
| | | ICU | | OT | | ICU | | OT | |
| | | F | P(%) | F | P(%) | F | P(%) | F | P(%) |
| 9 | Do you adopt any occupational safety measures given by institution like | | | | | | | | |
| | a. Availing break during working hours | 4 | 26.7 | 5 | 33.3 | 6 | 40.0 | 5 | 33.3 |
| | b. Seating facilities | 7 | 46.6 | 8 | 53.3 | 5 | 33.3 | 5 | 33.3 |
| | c. Utilizing sick leave/Other leave facilities | 3 | 20.0 | 2 | 13.4 | 3 | 20.0 | 5 | 33.3 |
| | d. Yearly health check up | 1 | 6.7 | 0 | 0.0 | 1 | 6.7 | - | - |
| **10** | Are you aware of stretching exercise (Acharya Technique) | | | | | | | | |
| | a. Yes | 2 | 13.3 | 15 | 100 | 3 | 20.0 | 1 | 6.7 |
| | b. No | 13 | 86.7 | - | - | 12 | 80.0 | 14 | 93.3 |
| | If yes specify the source of information. | | | | | | | | |
| | a. Mass media | - | - | - | - | - | - | - | - |
| | b. Friends/ Relatives | 1 | 50.0 | | - | 1 | 33.3 | 1 | 100 |
| | c. Health care personnel | - | - | - | - | - | - | - | - |
| | d. Books | 1 | 50.0 | - | - | 2 | 66.7 | - | - |

O1 =Experimental group O2= Control group

Table 2.4 reveals that in experimental group 7 (46.6%) nurses in ICU and 8 (53.3%) nurses in OT were utilizing seating facilities. Thirteen (86.7%) nurses in ICU and 15 (100%) in OT were not aware of Acharya Technique.

In control group 6 (40.0%) nurses in ICU and 5(33.3%) nurses in OT were availing break time. Twelve (80.0%) nurses in ICU and 14 (93.3%) nurses in OT were not aware of Acharya Technique.

**Table 2.5: Frequency and percentage distribution of the clinical variables of the nurses based on practicing exercise and duration of exercise.**

**N=60 O1=30, O2=30**

| S. No | Clinical variables | GROUP | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Experimental group | | | | Control Group | | | |
| | | ICU | | OT | | ICU | | OT | |
| | | F | P(%) | F | P(%) | F | P(%) | F | P(%) |
| **11** | Do you practice any exercise | | | | | | | | |
| | a. Yes | 13 | 86.7 | 1 | 6.7 | 12 | 80.0 | 8 | 53.3 |
| | b. No | 2 | 13.3 | 14 | 93.3 | 3 | 20.0 | 7 | 46.7 |
| | If yes what type of exercise | | | | | | | | |
| | a. Walking | 12 | 92.3 | 1 | 100.0 | 10 | 83.3 | 8 | 100.0 |
| | b. Aerobics | 1 | 7.7 | - | - | 2 | 16.7 | - | - |
| | c. Jogging | - | - | - | - | - | - | - | - |
| | d. Any other specify | - | - | - | - | - | - | - | - |
| | e. None | - | - | - | - | - | - | - | - |
| **12** | Duration of exercise per day | | | | | | | | |
| | a. 10- 15 Minutes | 11 | 84.6 | 1 | 100.0 | 7 | 58.3 | 8 | 100 |
| | b. 15-20 Minutes | 1 | 7.7 | - | - | 3 | 25.0 | - | - |
| | c. 20-25Minutes | 1 | 7.7 | - | - | - | - | - | - |
| | d. 25-30Minutes | - | - | - | - | 2 | 16.7 | | - |
| | e. None | - | - | - | - | - | - | | |

O1 =Experimental group O2= Control group

Table 2.5 Shows that in experimental group 13 (86.7%) nurses in ICU were practicing exercise. Out of 13 nurses, 12 (92.3%) were going for walking and among them majority 11 (84.6%) nurses were walking for 10-15 minutes per day. In OT, majority 14 (93.3%) of the nurses were not practicing any exercise.

In control group majority 12 (80.0%) nurses in ICU were practicing exercise. Out of 12, ten (83.3%) nurses going for walking and among them 7 (58.3%) were walking for 10-15 minutes per day. In OT 8 (53.3%) nurses were practicing exercise and all 8 (100.0%) were walking for 10-15 minutes per day.

# SECTION III

## PRE TEST AND POST TEST LEVEL OF LOW BACK PAIN AMONG NURSES WORKING IN ICU AND OT

**Table 3.1 Frequency and percentage distribution of the level of low back pain among nurses working in ICU and OT.**

**N=60 O1=30,O2=30**

| Group | | | Level of low back pain | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | No pain | | Mild pain | | Moderate pain | | Severe pain | |
| | | | N | % | N | % | N | % | N | % |
| ICU | Experimental group | Pre test | 0 | 0.0 | 0 | 0.0 | 8 | 53.3 | 7 | 46.7 |
| | | Post test | 0 | 0.0 | 13 | 86.7 | 2 | 13.3 | 0 | 0.0 |
| | Control group | Pre test | 0 | 0.0 | 0 | 0.0 | 11 | 73.3 | 4 | 26.7 |
| | | Post test | 0 | 0.0 | 0 | 0.0 | 10 | 66.7 | 5 | 33.3 |
| OT | Experimental group | Pre test | 0 | 0.0 | 0 | 0.0 | 9 | 60.0 | 6 | 40.0 |
| | | Post test | 0 | 0.0 | 9 | 60.0 | 6 | 40.0 | 0 | 0.0 |
| | Control group | Pre test | 0 | 0.0 | 0 | 0.0 | 9 | 60.0 | 6 | 40.0 |
| | | Post test | 0 | 0.0 | 0 | 0.0 | 10 | 66.7 | 5 | 33.3 |

O1 =Experimental group O2= Control group

able3.1.reveals that in experimental group majority, 8 (53.3%) nurses in ICU had moderate low back pain in pretest. Whereas, in posttest majority, 13 (86.7%) nurses had mild low back pain. In control group majority of the nurses had moderate low back pain in pre and post test.

In experimental group of nurses in OT majority , 9(60.0%) nurses had moderate low back pain in pretest .Whereas in post test majority 9 (60.0%) nurses had mild level of low back pain. In control group majority of the nurses had moderate level of low back pain in pre and post test.

**PRE TEST AND POST TEST LEVEL OF LOW BACK PAIN DISABILITY AMONG NURSES WORKING IN ICU AND OT**

**Table 3.2 Frequency and percentage distribution of the level of low back pain disability among nurses working in ICU and OT.**

**N=60 O1=30, O2=30**

| Group | | | Level of low back pain Disability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | No disability | | Mild disability | | Moderate disability | | Severe disability | |
| | | | N | % | N | % | N | % | N | % |
| ICU | Experimental group | Pre test | 0 | 0.0 | 3 | 20.0 | 12 | 80.0 | 0 | 0.0 |
| | | Post test | 0 | 0.0 | 15 | 100 | 0 | 0.0 | 0 | 0.0 |
| | Control group | Pre test | 0 | 0.0 | 7 | 46.7 | 8 | 53.3 | 0 | 0.0 |
| | | Post test | 0 | 0.0 | 8 | 53.3 | 7 | 46.7 | 0 | 0.0 |
| OT | Experimental group | Pre test | 0 | 0.0 | 2 | 13.3 | 13 | 86.7 | 0 | 0.0 |
| | | Post test | 0 | 0.0 | 13 | 86.7 | 2 | 13.3 | 0 | 0.0 |
| | Control group | Pre test | 0 | 0.0 | 6 | 40.0 | 9 | 60.0 | 0 | 0.0 |
| | | Post test | 0 | 0.0 | 8 | 53.3 | 7 | 46.7 | 0 | 0.0 |

O1 =Experimental group O2= Control group

Table 3.2 shows that in experimental group, majority 12 (80.0%) nurses in ICU had moderate low back pain disability in pre test whereas in post test all 15 (100.0%) nurses had mild low back pain disability. In control group majority 8 (53.3%) nurses had moderate disability in pretest mild disability in posttest.

In experimental group , majority 13 (86.7%) nurses in OT had moderate low back pain disability in pretest whereas in post test most of the nurses 13 (86.7%) had mild low back pain disability. In control group 9(60.0%) nurses had moderate disability in pretest and in posttest 8 (53.3%) had mild disability.

# SECTION IV

## COMPARISON OF PRE AND POSTTEST LEVEL OF LOW BACK PAIN AMONG NURSES WORKING IN ICU AND OT

**Table 4.1: Mean and Standard deviation score of low back pain among nurses working in ICU and OT.**

**N=60 O1=30 , O2=30**

| Group | | Low back pain score | | | | Mean difference | Paired 't' test |
|---|---|---|---|---|---|---|---|
| | | Pre test | | Post test | | | |
| | | Mean | SD | Mean | SD | | |
| Experimental group | ICU | 6.27 | 1.16 | 2.87 | 0.64 | 3.40 | t=12.47 p=0.001*** **Significant** |
| | OT | 6.33 | 0.62 | 3.27 | 0.88 | 3.06 | t=13.44 p=0.001*** **Significant** |
| Control Group | ICU | 6.20 | 1.15 | 6.00 | 1.41 | 0.20 | t=0.64 p=0.53 Not significant |
| | OT | 6.27 | 0.88 | 6.07 | 1.28 | 0.20 | t=0.82 p=0.42 Not significant |

O1=Experimental group , O2= Control group ( ***- denotes significant at p<0.001)

Table 4.1 shows that in experimental group , the pretest mean score of low back pain was 6.27 with the SD of 1.16 and in posttest the score was 2.87 with the SD of 0.64 among nurses in ICU. In OT, the pretest mean score was 6.33 with the SD of 0 .62 and in posttest score was 3.27 with the SD of 0.88.

In control group the pretest mean score of low back pain was 6.20 with the SD of 1.15 and in posttest the score was 6.00 with the SD of 1.41 among nurses in ICU. In OT the pretest mean score was 6.27 with the SD of 0.88 and in posttest score was 6.07 with the SD of 1.28.

There was a statistically significant difference between pre and post test score for low back pain among nurses in experimental group at (p=0.001) level.

Above findings reveals that Acharya Technique was effective in reducing low back pain among experimental group of nurses working in ICU and OT.

**COMPARISON OF PRE AND POSTTEST LEVEL OF LOW BACK PAIN DISABILITY SCORE AMONG NURSES WORKING IN ICU AND OT**

**Table.4.2 Mean and Standard deviation of low back pain disability index among nurses working in ICU and OT.**

**N=60 O1=30, O2=30**

| Group | | Low back pain disability score | | | | Mean difference | Paired 't' test |
|---|---|---|---|---|---|---|---|
| | | Pre test | | Post test | | | |
| | | Mean | SD | Mean | SD | | |
| Experimental group | ICU | 13.93 | 1.79 | 9.20 | 1.42 | 4.73 | t=9.07 p=0.001*** **Significant** |
| | OT | 13.80 | 1.74 | 10.80 | 1.37 | 3.00 | t=7.45 p=0.001*** **Significant** |
| Control Group | ICU | 12.93 | 2.28 | 12.47 | 1.36 | 0.46 | t=1.24 p=0.23 Not significant |
| | OT | 13.80 | 1.91 | 12.93 | 1.94 | 0.33 | t=0.86 p=0.40 Not significant |

O1=Experimental group , O2= Control group( ***- denotes significant at p<0.001)

Table 4.2 shows that in experimental group, among ICU nurses the pretest mean score of low back pain disability was 13.93 with the SD of 1.79 and in posttest the score was 9.20 with the SD of 1.42. In OT the pretest mean score was 13.80 with the SD of 1.74 and in posttest the score was 10.80 with the SD of 1.37.

In control group, among ICU nurses the pretest mean score of low back pain disability was 12.93 with the SD of 2.28 in pretest and in posttest the score was 12.47 with the SD of 1.36.In OT the mean score was13.80 with the SD of 1.91 in pre test and in posttest the score was 12.93 with the SD of 1.94.

There was a statistically significant difference between pre and post test score for low back pain disability among nurses in experimental group at (p=0.001) level.

Above findings reveals that Acharya Technique was effective in reducing low back pain disability among experimental group of nurses working in ICU and OT.

**COMPARISON OF LEVEL OF LOW BACK PAIN SCORE BETWEEN NURSES WORKING IN OT AND ICU.**

**Table.4.3 Mean and Standard deviation of low back pain between nurses working in OT and ICU.**

**N=60 O1=30, O2=30**

| Group | | Low back pain score | | | | Mean difference | Student independent t –test |
|---|---|---|---|---|---|---|---|
| | | OT | | ICU | | | |
| | | Mean | SD | Mean | SD | | |
| Pre test | Experimental group | 6.33 | 0.62 | 6.27 | 1.16 | 0.06 | t=0.44p=0.66 NS |
| | Control group | 6.27 | 0.88 | 6.20 | 1.15 | 0.07 | t=0.82 p=0.42NS |
| Post test | Experimental group | 3.27 | 0.88 | 2.87 | 1.41 | 0.40 | **t=1.96 p=0.05*Significant** |
| | Control group | 6.07 | 1.28 | 6.00 | 1.41 | 0.07 | t=1.14 p=0.27 NS |

O1=Experimental group,O2= Control group NS-Not significant (p=0.05, *- denotes significant at 5% level)

Table 4.3. shows that in experimental group of nurses in OT the pretest mean score of low back pain was 6.33 with the SD of 0.62 and in ICU score was 6.27 with the SD of1.16.In control group of nurses in OT the pretest mean score was 6.27 with the SD of 0.88 and in ICU mean score was 6.20 with the SD of1.15.

In experimental group of nurses in OT the posttest mean score of low back pain was 3.27 with the SD of 0.88 and in ICU mean score was 2.87 with the SD of 1.14.In control group of nurses in OT the posttest mean score was 6.07 with the SD of1.28 and in ICU mean score was 6.00 with the SD of 1.41.

There was a statistically significant difference in low back pain between nurses in OT and ICU experimental group at (p=0.05) level.

Above findings reveals that Acharya Technique was effective in reducing low back pain among experimental group of nurses in ICU when compared to nurses in OT.

**COMPARISON OF LEVEL OF LOW BACK PAIN DISABILITY SCORE BETWEEN NURSES WORKING IN OT AND ICU.**

**Table.4.4 Mean and Standard deviation of low back pain disability score between nurses working in OT and ICU.**

**N=60 O1=30, O2=30**

| Group | | Low back pain disability score | | | | Mean difference | Student independent t- test |
|---|---|---|---|---|---|---|---|
| | | OT | | ICU | | | |
| | | Mean | SD | Mean | SD | | |
| Pre test | Experimental group | 13.80 | 1.74 | 13.93 | 1.79 | -0.13 | t=0.20 p=0.84 NS |
| | Control group | 13.27 | 1.91 | 12.93 | 2.28 | 0.34 | t=0.44 p=0.66 NS |
| Post test | Experimental group | 10.80 | 1.37 | 9.20 | 1.42 | 1.60 | **t=2.16 p=0.05*Significant** |
| | Control group | 12.93 | 1.94 | 12.47 | 1.36 | 0.46 | t=0.85 p=0.44 NS |

O1=Experimental group , O2= Control group (p=0.05 *- denotes significant at 5% level)

Table 4.4 shows that in experimental group of nurses in OT the pretest mean score of low back pain disability was 13.80 with the SD of 1.74 and in ICU mean score was 13.93 with the SD of 1.79.In control group of nurses in OT the pretest mean score was 13.27 with the SD of 1.91 and in ICU mean score was12.93 with the SD of 2.28.

In experimental group of nurses in OT the posttest mean score of low back pain disability was 10.80 with the SD of 1.37 and in ICU mean score was 9.20 with the SD of 1.42.In control group of nurses in OT the posttest mean score was 12.93 with the SD of 1.94 and in ICU mean score was 12.47 with the SD of 1.36.

There was a statistically significant difference in low back pain disability between nurses in OT and OT experimental group at (p=0.05) level.

Above findings reveals that Acharya Technique was effective in reducing low back pain disability among experimental group of nurses in ICU when compared to nurses in OT.

**EFFECTIVENESS OF ACHARYA TECHNIQUE AMONG NURSES WORKING IN ICU AND OT**

**Table 4. 5. Mean reduction score and percentage of mean reduction score of low back pain and low back pain disability among nurses working in ICU and OT.**

**N=60 O1=30 , O2=30**

| | Group | Pre test | Post test | Mean reduction score with 95% CI | % of reduction score with 95% CI |
|---|---|---|---|---|---|
| **Low back Pain score** | Experimental group ICU | 6.27 | 2.87 | 3.40(2.82-3.98) | 34.0% (28.2-39.8%) |
| | Control group | 6.20 | 6.0 | 0.20(-0.47-0.87) | 2.0% (-4.7-8.7%) |
| | Experimental group OT | 6.33 | 3.27 | 3.06 (2.58-3.56) | 30.6% (25.8-35.6%) |
| | Control group | 6.27 | 6.07 | 0.20(-0.32-0.72) | 2.0%(-3.2-7.2%) |
| **Low back pain disability score** | Experimental group ICU | 13.93 | 9.20 | 4.73(3.62-5.85) | 19.7% (15.1-24.4%) |
| | Control group | 12.93 | 12.47 | 0.46(-0.34- 1.27) | 1.9%(-1.4-5.3%) |
| | Experimental group OT | 13.80 | 10.80 | 3.00(2.14-3.86) | 12.5% (8.9-16.1%) |
| | Control group | 13.27 | 12.93 | 0.33(-0.50-1.16) | 1.4%(-2.1-4.8%) |

O1=Experimental group , O2= Control group

Table 4.5 reveals that in ICU experimental group the mean reduction score of low back pain between pre and post test was 3.40 .Whereas, in control group score was 0.20 . In OT experimental group the mean reduction score was 3.06. Whereas, in control group the score was 0.20.

In ICU experimental group the mean reduction score of low back pain disability between pre and post test was 4.73.Whereas ,in control group the score was 0.46. In OT experimental group the mean reduction score was 3.00.Whereas, in control group the mean reduction score was 0.33.

The mean reduction score is higher in experimental group when compared to control group at 95% level of confidence.

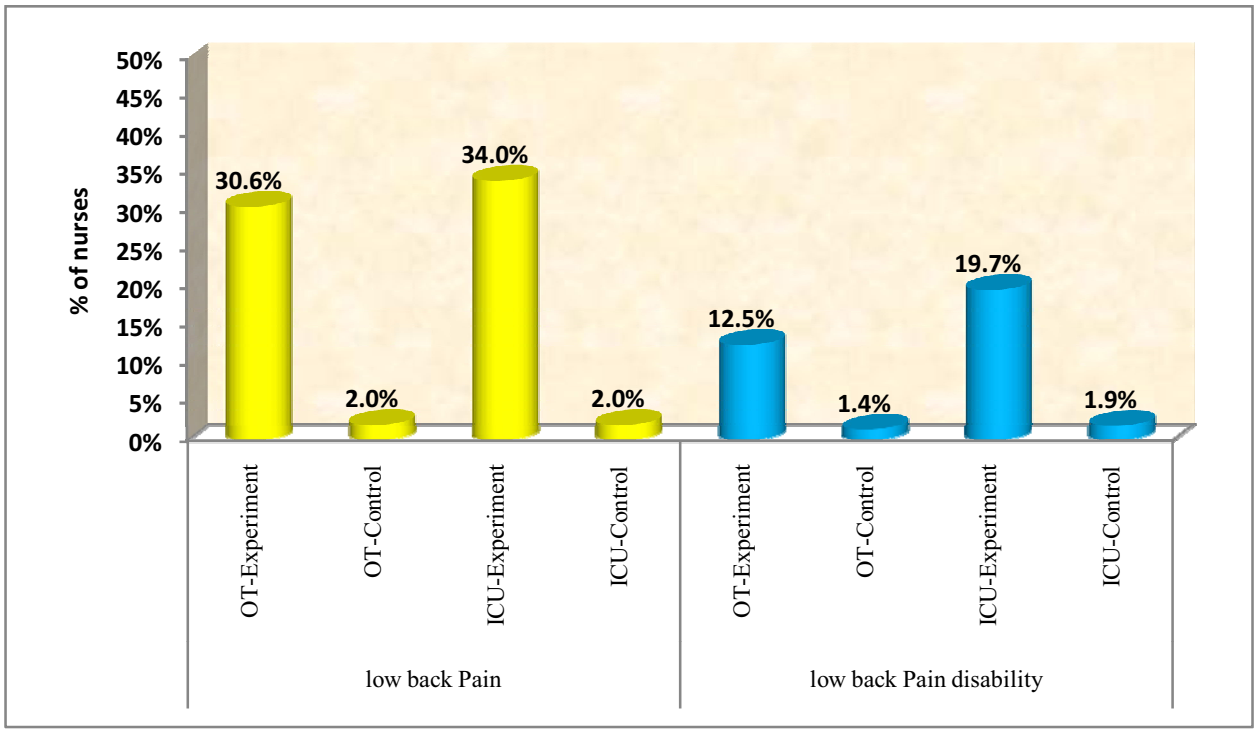



**Fig No:6. Effectiveness of Acharya Technique on low back pain among nurses working in ICU and OT**

# SECTION:V

## ASSOCIATION OF POST INTERVENTIONAL LEVEL OF LOW BACK PAIN WITH SELECTED DEMOGRAPHIC AND CLINICAL VARIABLES AMONG NURSES WORKING IN ICU IN EXPERIMENTAL GROUP

**Table.5.1 Association between the posttest level of low back pain with the demographic variables such as age, dietary habit and clinical variable such as measures adopted to manage low back pain.**

**N=60 O1=30, O2=30**

| S.NO | Demographic variables | Level of pain | | | | Total | Chi square test |
|---|---|---|---|---|---|---|---|
| | | Mild | | Moderate | | | |
| | | F | % | F | % | | |
| **1** | Age<br>a. 25-<35 years<br>b. 35-<45 years<br>c. 45-<55 years | 13<br>0 | 100.0<br>0.0 | 0<br>2 | 0.0<br>100.0 | 13<br>2 | $\chi 2$=18.46 p=0.01 * *S |
| **2** | Dietary habit<br>a. Vegetarian<br>b. Non vegetarian | 2<br>11 | 50.0<br>100.0 | 2<br>0 | 50.0<br>0.0 | 4<br>11 | $\chi 2$=6.34 p=0.01**S |
| | **Clinical variables** | | | | | | |
| **3** | Do you adopt any measures to manage low back pain<br>a. Yes<br>b. No | 12<br>1 | 100.0<br>33.3 | 0<br>2 | 0.0<br>66.7 | 12<br>3 | $\chi 2$=10.83 p=0.01 * *S |

(S- Significant p=0.01 **-denotes significant at 1% level)

Table 5.1 reveals that there was a statistically significant association found between the level of low back pain among nurses working in ICU with the demographic variables such as age and dietary habit at 1% level of significance. There was no significant association found between the level of low back pain with other demographic variables such as BMI, religion, monthly income marital status and type of family etc.

The table also reveals that there was a statistically significant association found between the post test level of low back pain among nurses working in ICU with the clinical variables such as measures adopted to manage low back pain at 1% level of significance. There was no significant association found between the level of low back pain with the other clinical variables such as frequency, duration, type and contributing factors of low back pain.

**ASSOCIATION OF POST INTERVENTIONAL LEVEL OF LOW BACK PAIN WITH SELECTED DEMOGRAPHIC VARIABLES AMONG NURSES WORKING IN OT IN EXPERIMENTAL GROUP**

**Table. 5.2 Association between the post test level low back pain demographic variables such as marital status, type of cases nursed in OT.**

**N=60 O1=30, O2=30**

| S.NO | Demographic variables | Level of pain | | | | Total | Chi square test |
|---|---|---|---|---|---|---|---|
| | | Mild | | Moderate | | | |
| | | F | % | F | % | | |
| **1** | Marital status<br>a. Married<br>b. Unmarried<br>c. Widow/ Widower<br>d. Divorced/ Separated | <br>2<br>7 | <br>28.6<br>87.5 | <br>5<br>1 | <br>71.4<br>12.5 | <br>7<br>8 | $\chi 2=5.40$ p=0.02 *S |
| **2** | Type of cases nursed in ICU/OT<br>a. General cases<br>b. Special cases | <br>9<br>0 | <br>69.2<br>0.0 | <br>4<br>2 | <br>30.0<br>100 | <br>13<br>2 | $\chi 2=4.66$ p=0.05* S |

(S- significant p=0.02,0.05 *- denotes significant at 5% level)

Table 5.2 reveals that there was a statistically significant association found between the level of low back pain among nurses working in OT with the demographic variables such as marital status and type of cases nursed in OT at 5% level . There was no significant association found between level of low back pain with the other demographic variables such as age, dietary habit, type of family etc.

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**ASSOCIATION OF POST INTERVENTIONAL LEVEL OF LOW BACK PAIN WITH SELECTED CLINICAL VARIABLES AMONG NURSES WORKING IN OT IN EXPERIMENTAL GROUP**

**Table.5.3 Association between post interventional level of low back pain score with the clinical variables such as duration of low back pain, hours of low back pain per day and frequency of low back pain per day.**

**N=60 O1=30,O2=30**

| S.NO | Clinical variables | Level of pain | | | | Total | Chi square test |
|---|---|---|---|---|---|---|---|
| | | Mild | | Moderate | | | |
| | | F | % | F | % | | |
| **1** | How long do you have low back pain | | | | | | |
| | a. Less than 6 months | 4 | 100.0 | 0 | 0.0 | 4 | $\chi2$=6.33 p=0.05 *S |
| | b. 6 months to 1 year | 4 | 57.1 | 3 | 42.9 | 7 | |
| | c. 1 year to 2 years | 1 | 25.0 | 3 | 75.0 | 4 | |
| **2** | How many hours feel low back pain per day | | | | | | |
| | a. One hour | 4 | 75.0 | 0 | 0.0 | 4 | $\chi2$=9.46 p=0.05 *S |
| | b. 1-2 Hours | 4 | 50.0 | 2 | 50.0 | 6 | |
| | c. More than 2 Hours | 1 | 33.3 | 2 | 66.7 | 3 | |
| | d. Throughout the day | 0 | 0.0 | 2 | 100.0 | 2 | |
| **3** | How frequent you experience back pain per day | | | | | | |
| | a. Daily | 2 | 66.7 | 1 | 33.3 | 3 | $\chi2$=5.40 p=0.02 *S |
| | b. Sometimes | 3 | 75.0 | 1 | 25.0 | 4 | |
| | c. While taking care of many patients | - | - | 1 | 100.0 | 1 | |
| | d. While extending duty time | 4 | 57.1 | 3 | 42.9 | 7 | |

**(**S- Significant p=0.05,0.02 *- denotes significant at 5% level)

Table 5.3 reveals that there was a statistically significant association found between the level of low back pain among nurses working in OT with the clinical variables such as duration , hours of feeling low back pain per day and frequency of low back pain per day at 5% level . There was no significant association found between the level of low back pain with the other clinical variables such as contributing factors and measures adopted to manage low back pain etc.

**ASSOCIATION BETWEEN POST INTERVENTIONAL LEVEL OF LOW BACK PAIN DISABILITY INDEX WITH SELECTED DEMOGRAPHIC AND CLINICAL VARIABLES AMONG NURSES WORKING IN OT IN EXPERIMENTAL GROUP**

**Table.5.4 Association between the post interventional level of low back pain disability score with the demographic variables such as type of family and total years of experience and clinical variables such as hours of feeling low back pain per day.**

**N=60 O1=30,O2=30**

| S.NO | Demographic variables | Level of pain | | | | Total | Chi square test |
|---|---|---|---|---|---|---|---|
| | | Mild | | Moderate | | | |
| | | F | % | F | % | | |
| **1** | Type of Family | | | | | | |
| | a. Nuclear family | 11 | 100.0 | 0 | 0.0 | 11 | |
| | b. Joint family | 2 | 50.0 | 2 | 50.0 | 4 | $\chi 2=6.34$ p=0.01**S |
| **2** | Total years of clinical experience in ICU/OT | | | | | | |
| | a. <3 years | 7 | 100.0 | 0 | 0.0 | 7 | |
| | b. 3-< 6 years | 3 | 60.0 | 2 | 40.0 | 5 | $\chi 2=15.01$ p=0.01 |
| | c. >6 years | 3 | 100.0 | 0 | 0.0 | 3 | **S |
| | **Clinical variables** | | | | | | |
| **3** | How many hours feel low back pain per day | | | | | | |
| | a. One hour | 4 | 100.0 | | | 4 | $\chi 2=3.46$ |
| | b. 1-2 Hours | 4 | 66.7 | 2 | 33.3 | 6 | p=0.32NS |
| | c. More than 2 Hours | 3 | 100.0 | | | 3 | |
| | | 2 | 100.0 | | | 2 | |
| | d. Throughout the day | | | | | | |

(S- Significant p=0.01 **- denotes significant at 1% level)

Table 5.5 reveals that there was a statistically significant association found between the level of low back pain disability of nurses working in OT with the demographic variables such as type of family and total years of clinical experience among nurses working in OT at 1% level whereas no statistically significant association found between the level of low back pain disability with other demographic variables such as age, gender, monthly income, present working area, number of cases nursed per day and clinical variables such as hours of feeling low back pain per day, measures adopted to manage low back pain etc.

# CHAPTER V

# DISCUSSION

The present study was intended to assess the effectiveness of Acharya Technique on low back pain among nurses working in ICU and OT in selected hospitals ,Chennai.

A total of 60 samples were selected by non probability purposive sampling method (30 in ICU =15 -experimental group, 15 -control group and 30 in OT = 15 –experimental group,15- control group). The demographic and clinical data was collected using semi structured questionnaire. Pre and post test level of low back pain, low back pain disability was assessed before and after administration of Acharya technique. The collected data were tabulated and analyzed using descriptive and inferential statistics and results were interpreted. The discussion is based on the objectives specified in the study.

**The significant findings of the study were as follows**

**In relation to demographic variables**

- In experimental group of nurses working in ICU 86.7% nurses and in control group 93.3% nurses were between the age group of 25-<35 years. 60% of nurses in experimental group and 86.7% nurses in control group were females, in experimental group 80% and in control group 86.7% nurses were underweight, 60% nurses and 66.7% nurses were Christians in both groups. 80% nurses and73.3% nurses were earning Rs 5000-10000 as monthly income in both the groups.

- In relation to dietary habit in both experimental and control group 73.3% nurses were non vegetarian, 60.0% nurses and 73.3% nurses were unmarried, 60% nurses and 66.7% nurses belongs to nuclear family in both the groups. In experimental group 53.3% nurses and in control group 46.7% had the qualification of Diploma in nursing. Regarding years of clinical experience, designation and types of cases nursed 40.0% and 66.7% nurses have 3-6 years of clinical experience and 53.3% and 66.7% nurses were staff nurses, 60.0% nurses were caring speciality cases in both the groups .
- Regarding number of cases nursed per day 33.3% nurses and 60.0% nurses cared 1-2 cases per day in both the groups respectively, 60.0% nurses in experimental were working for 7 hours and in control group 66.7% nurses were working for >8 hours per day.
- Among nurses working in OT in experimental group 93.3% and in control group 86.7% nurses were between the age group of 25-<35 years ,86.7% and 73.3% nurses were females , 73.3% and 60.0% nurses were underweight, 53.3% and 60.0% nurses belongs to Hindu religion, 66.7% and 60.0% nurses were earning Rs 5000-10000 per month respectively in both the group.
- In relation to dietary habit in both experimental and control group 86.7% and 80.0% nurses were non vegetarian, about 53.3% were unmarried , 73.3% and 66.7% nurses were belongs to nuclear family in both group. Regarding qualification, years of clinical experience, designation and type of cases nursed, 73.3% and 86.7% nurses were have the qualification of Diploma in nursing , 46.7% nurses were having <3 years of clinical experience in both the group, 53.3% and 66.7% nurses were staff nurse, 86.7% and 80.0% nurses were caring speciality cases in both the group respectively.

- Regarding number of cases nursed per day , average number of work hours ,60.0% nurses cared >3 cases per day , 73.3% and 66.7% nurses were working for >8 hours per day in both experimental and control group.

**In relation to clinical variables**

- All 100% nurses in ICU in both experimental and control group had low back pain, in experimental group 60.0% nurses and in control group 46.7% nurses were having low back pain for 6 months to 1 year. In experimental group 53.3% nurses were perceiving nagging type and in control group 33.3% nurses were perceiving other type of low back pain, in experimental group 60.0% nurses were having low back pain for > 2 hours per day and in control group 40.0% nurses were having low back pain for 1-2 hours per day.
- Regarding frequency of low back pain in experimental group 86.7% nurses and in control group 73.3% nurses have low back pain sometimes, in experimental group 80.0% nurses and in control group 73.3% nurses have low back pain while standing for long time, in experimental group 40.0% nurses and in control group 46.7% nurses felt like restricting activity, in experimental group 80.0% nurses adopted measures to manage low back pain among them 41.7% nurses use pain killers.
- In experimental group 46.6% and in control group 40.0% nurses were utilizing seating facilities, in experimental group 86.7% nurses and in control group 80.0% nurses were not aware of Acharya Technique, 86.7% and 80.0% nurses were practicing exercise in both the group, among them 92.3% nurses and 83.3% nurses were practicing walking as exercise, 84.6% and 58.3% nurses were walking for 10-15minutes per day in both the groups.

- All 100% nurses in OT in both experimental and control group had low back pain, 60.0% and 46.7% nurses were having low back pain for 6 months to 1 year, 26.7% and 46.7% nurses perceiving radiating type of low back pain in both the group, 40.0% nurses in experimental group were having low back pain for 1- 2 hours per day and in control group 33.3% nurses were having low back pain for >2 hours per day.
- Regarding frequency of low back pain 46.7% nurses in experimental group having low back pain while extending duty time and in control group 53.3% nurses having low back pain sometimes, 80.0% and 86.7% nurses have contributing factor as while standing for long time, 66.7% and 46.7% nurses felt like restricting activity , 80.0% and 73.3% nurses not adopted any measures to manage low back pain in both the group respectively .
- In experimental group 53.3% nurses were utilizing seating facilities in control group 33.3% nurses availing break time, 100% and 93.3% nurses not aware of Acharya Technique in both the group , 86.7% nurses in experimental group were not practicing any exercise and in control group 53.3% nurses were practicing exercise among them 100 .% nurses were practicing exercise as walking about 10-15minutes per day.

**The findings of the study as per the objectives are ,**

1. **To assess the low back pain among nurses before and after intervention.**

Table 3.1.revealed that in experimental group majority , 8 (53.3%) nurses in ICU had moderate low back pain in pretest. Whereas , in post test majority, 13 (86.7%) nurses had

mild low back pain. In control group majority of the nurses had moderate low back pain in pre and post test.

In experimental group of nurses in OT majority , 9(60.0%) nurses had moderate low back pain in pretest .Whereas in post test majority 9 (60.0%) nurses had mild level of low back pain. In control group majority of the nurses had moderate level of low back pain in pre and post test.

The present study findings were supported by the result of June, K.J & Cho, S.H (2014), on low back pain among nurses in ICU. They found that 90% of the nurses in ICU had moderate low back pain.

Table 3.2 shown that in experimental group, majority 12 (80.0%) nurses in ICU had moderate low back pain disability in pre test whereas in post test all 15 (100.0%) nurses had mild low back pain disability. In control group majority 8 ( 53.3%) nurses had moderate disability in pretest had mild disability in posttest.

In experimental group , majority 13 (86.7%) nurses in OT had moderate low back pain disability in pretest whereas in post test most of the nurses 13 (86.7%) had mild low back pain disability. In control group 9(60.0%) nurses had moderate disability in pretest and in posttest 8 (53.3%) had mild disability.

**2. To assess the effectiveness of Acharya Technique on low back pain among nurses working in ICU and OT.**

**(i) Comparison of pre and post test level of low back pain and low back pain disability among nurses working in ICU and OT**

Table 4.1 showed that in experimental group , the pretest mean score of low back pain was 6.27 with the SD of 1.16 and in posttest the score was 2.87 with the SD of 0.64 among nurses in ICU. In OT, the pretest mean score of low back pain was 6.33 with the SD of 0 .62 and in posttest score was 3.27 with the SD of 0.88.

In control group the pretest mean score of low back pain was 6.20 with the SD of 1.15 and in posttest the score was 6.00 with the SD of 1.41 among nurses in ICU. In OT the pretest mean score of low back pain was 6.27 with the SD of 0.88 in pre test and in posttest score was 6.07 with the SD of 1.28.

There was a statistically significant difference between pre and post test score for low back pain among nurses in experimental group at ($p=0.001$) level.

Above findings revealed that Acharya Technique was effective in reducing low back pain among experimental group of nurses working in ICU and OT.

Table 4.2 showed that in experimental group, among ICU nurses the pretest mean score of low back pain disability was 13.93 with the SD of 1.79 and in posttest the score was 9.20 with the SD of 1.42. In OT the pretest mean score of low back pain disability was 13.80 with the SD of 1.74 and in posttest the score was 10.80 with the SD of 1.37.

In control group, among ICU nurses the pretest mean score of low back pain disability was 12.93 with the SD of 2.28 in pretest and in posttest the score was 12.47 with the SD of 1.36.In OT the mean score of low back pain disability was13.80 with the SD of 1.91 in pre test and in posttest the score was 12.93 with the SD of 1.94.

There was a statistically significant difference between pre and post test score for low back pain disability among nurses in experimental group at (p=0.001) level.

Above findings reveals that Acharya Technique was effective in reducing low back pain disability among experimental group of nurses working in ICU and OT.

**ii) Comparison of pre and post test level of low back pain and low back pain disability between nurses working in ICU and OT**

Table 4.3. showed that in experimental group of nurses in OT the pretest mean score of low back pain was 6.33 with the SD of 0.62 and in ICU score was 6.27 with the SD of1.16.In control group of nurses in OT the pretest mean score was 6.27 with the SD of 0.88 and in ICU mean score was 6.20 with the SD of1.15

In experimental group of nurses in OT the posttest mean score of low back pain was 3.27 with the SD of 0.88 and in ICU mean score was 2.87 with the SD of 1.14.In control group of nurses in OT the posttest mean score was 6.07 with the SD of1.28 and in ICU mean low back pain score was 6.00 with the SD of1.41.

There was a statistically significant difference in low back pain between nurses in OT and ICU experimental group at (p=0.05) level.

Above findings reveals that Acharya Technique was effective in reducing low back pain among experimental group of nurses in ICU when compared to nurses in OT.

Table 4.4 showed that in experimental group of nurses in OT the pretest mean score of low back pain disability was 13.80 with the SD of 1.74 and in ICU mean score was 13.93 with the SD of 1.79.In control group of nurses in OT the pretest mean score was 13.27 with the SD of 1.91 and in ICU mean score was12.93 with the SD of 2.28.

In experimental group of nurses in OT the posttest mean score of low back pain disability was 10.80 with the SD of 1.37 and in ICU mean score was 9.20 with the SD of 1.42.In control group of nurses in OT the posttest mean score was 12.93 with the SD of 1.94 and in ICU mean score was 12.47 with the SD of 1.36.

There was a statistically significant difference in low back pain disability between nurses in OT and ICU experimental group at (p=0.05) level.

Above findings reveals that Acharya Technique was effective in reducing low back pain disability among experimental group of nurses in ICU when compared to nurses in OT.

**i) Effectiveness of Acharya Technique on low back pain and low back pain disability among nurses working in ICU and OT**

Table 4.5 revealed that in ICU experimental group the mean reduction score of low back pain between pre and post test was 3.40. Whereas, in control group the score was 0.20 . In OT experimental group the mean reduction score was 3.06. Whereas, in control group score was 0.20.

In ICU experimental group the mean reduction score of low back pain disability between pre and post test was 4.73. Whereas in control group the score was 0.46. In OT experimental group the mean reduction score was 3.00. Whereas in control group the score was 0.33

The mean reduction score is higher in experimental group when compared to control group at 95% level of confidence.

The above study findings were supported the study conducted by Anand, M.& Tamizhkodi.(2014).They assessed the effectiveness of Acharya Technique on low back pain among industrial workers at Erode, Tamilnadu. They concluded that this Acharya technique is effective in reducing low back pain and suggested to include this technique in continuing educational programmes on wider scale.

Hence, the null hypothesis stated that, there will be no significant difference in low back pain among nurses working in ICU and OT between pre and post intervention was rejected.

**3. To find association between post interventional level of low back pain among nurses with the selected demographic variables and clinical variables.**

Table 5.1 revealed that there was statistically significant association found between the level of low back pain among nurses working in ICU with the demographic variables such as age and dietary habit at 1% level of significance. There was no significant association found between the level of low back pain with the other demographic variables such as BMI, religion, monthly income marital status , type of family etc.

The table 5.1 also shows that there was statistically significant association found between the post test level of low back pain among nurses working in ICU with the clinical variables such as adopting measures to manage low back pain at 1% level of significance. There was no significant association found between the level of low back pain with the other clinical variables such as frequency, duration, type, contributing factors of low back pain etc.

The above findings were supported by the study conducted by Wong, T.S. et al. ( 2011) to assess the prevalence and risk factors associated with low back pain among ICU nurses. The risk factors identified were age of nurses and adoptation of poor body posture while lifting patients.

Table 5.2 revealed that there was statistically significant association found between the level of low back pain among nurses working in OT with the demographic variables such as marital status, type of cases nursed in OT at 5% level of significance. There was no significant association found between level of low back pain with the other demographic variables such as age, dietary habit, type of family ect.

The above findings were supported by study conducted by Deepak, B. A & Iyer C.et al. (2012) to assess the factors associated with low back pain among OT nurses. A strong association was found between low back pain and lifting and caring excessive number of dependent patients per day.

Table 5.3 revealed that there was statistically significant association found between the level of low back pain among nurses working in OT with the clinical variables such as duration, hours of feeling low back pain per day and frequency of low back pain per day at 5% level of significance. There was no significant association found between the level of low back pain with the other clinical variables such as contributing factors, low back pain makes them to feel, measures adopted to manage low back pain etc.

The above findings were supported by the study conducted by Nagwa, M.et al. (2012) to assess the frequency of low back pain among nurses working in OT . The study findings revealed that 84.2% of the nurses had low back pain at least once a month.

There was no statistically significant association found between the level of low back pain disability among nurses working in ICU with demographic variables such as as age ,gender, BMI ,monthly income and type of family and clinical variables such as type, duration, frequency, hours of feeling low back pain per day and measures adopted to manage low back pain etc.

Table 5.4 revealed that there was statistically significant association found between the level of low back pain disability and demographic variables such as type of family and total years of clinical experience among nurses working in OT at 1% level of significance. Whereas no significant association found between the level of low back pain disability with other demographic variables such as age, gender, monthly income, present working area, number of cases nursed per day and clinical variables such as hours of feeling low back pain, adopting measures to manage low back pain etc.

The above findings shows that the low back pain among staff nurses was influenced by demographic and clinical variables .Hence the assumption stated by the investigator that the low back pain among staff nurses will be influenced by demographic and clinical variables is supported by this study findings.

# CHPTER VI

# SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

## SUMMARY

The objective of the study was to assess the effectiveness of Acharya Technique on low back pain among nurses working in ICU and OT. A quasi experimental design was chosen to assess the effectiveness of Acharya Technique on low back pain. The review of literature provided the base and in depth knowledge for the development. The content validity of the tool was obtained from the experts and the reliability was determined through pilot study. The study was conducted in the selected hospital in Chennai with prior permission. A total of 60 samples were selected by using purposive sampling technique among nurses working in ICU and OT. The data was collected, analyzed, tabulated and the results were interpreted.

**The significant findings of the study were as follows**

**In relation to demographic variables**

- In experimental group of ICU nurses 86.7% and in control group 93.3% nurses were between the age group of 25-<35 years. 60% in experimental group and 86.7% nurses in control group were females, in experimental group 80% and in control group 86.7% nurses were underweight,60% nurses and 66.7% nurses were Christians in both groups. 80% nurses and73.3% nurses were earning Rs 5000-10000 as monthly income in both the groups.

- In relation to dietary habit in both experimental and in control group 73.3% nurses were non vegetarian, 60.0% and 73.3% nurses were unmarried, 60% and 66.7% nurses belongs to nuclear family in both the groups. In experimental group 53.3% nurses and in control group 46.7% had the qualification of Diploma in nursing. Regarding years of clinical experience, designation and types of cases nursed 40.0% and 66.7% nurses have 3-6 years of clinical experience and 53.3% and 66.7% nurses were staff nurses, 60.0% nurses were caring speciality cases in both the groups .
- Regarding number of cases nursed per day 33.3% nurses and 60.0% nurses cared 1-2 cases per day in both the groups respectively , 60.0% nurses in experimental group were working for 7 hours and in control group 66.7% nurses were working for >8 hours per day.
- In OT in experimental 93.3% and in control group 86.7% nurses were between the age group of 25-<35 years, 86.7% and 73.3% nurses were females, about BMI 73.3% and 60.0% nurses were underweight, 53.3% and 60.0% nurses belonged to Hindu religion, 66.7% and 60.0% nurses were earning Rs 5000-10000 per month respectively in both the group.
- Both experimental and control group 86.7% and 80.0% nurses were non vegetarian, about 53.3% were unmarried, 73.3% and 66.7% nurses were belonged to nuclear family in both group. Regarding qualification, years of clinical experience, designation and type of cases nursed, 73.3% and 86.7% nurses were have the qualification of Diploma in nursing, 46.7% nurses were having <3 years of clinical experience in both the group, 53.3% and 66.7% nurses were staff nurse, 86.7% and 80.0% nurses were caring speciality cases in both the group respectively.

- Regarding number of cases nursed per day 60.0% nurses cared >3 cases per day , 73.3% and 66.7% nurses were working for >8 hours per day in both experimental and control group.

**In relation to clinical variables**

- All 100% nurses in ICU in both experimental and control group had low back pain, in experimental group 60.0% nurses and in control group 46.7% nurses were having low back pain for 6 months to 1 year. In experimental group 53.3% nurses were perceiving nagging type of pain and in control group 33.3% nurses were perceiving other type of low back pain, in experimental group 60.0% nurses were having low back pain for > 2 hours per day and in control group 40.0% nurses were having low back pain for 1-2 hours per day.
- Regarding frequency of low back pain in experimental group 86.7% nurses and in control group 73.3% nurses had low back pain sometimes, in experimental group 80.0% nurses and in control group 73.3% nurses had low back pain while standing for long time, in experimental group 40.0% nurses and in control group 46.7% nurses felt like restricting activity, in experimental group 80.0% nurses adopted some measures to manage low back pain among them 41.7% nurses used pain killers.
- In experimental group 46.6% and in control group 40.0% nurses were utilizing seating facilities, in experimental group 86.7% nurses and in control group 80.0% nurses not aware of Acharya Technique, 86.7% and 80.0% nurses were practicing exercise in both the groups, among them 92.3% nurses and 83.3% nurses doing walking, 84.6% and 58.3% nurses were walking for 10-15minutes per day in both the groups.

- All 100% nurses in OT in both experimental and control group had low back pain, 60.0% and 46.7% nurses were having low back pain for 6 months to 1 year, 26.7% and 46.7% nurses perceiving radiating type of low back pain in both the group, 40.0% nurses in experimental group were having low back pain for 1- 2 hours per day and in control group 33.3% nurses were having low back pain for >2 hours per day.
- Regarding frequency of low back pain 46.7% nurses in experimental group having low back pain while extending duty time and in control group 53.3% nurses having low back pain sometimes, 80.0% and 86.7% nurses have contributing factor as while standing for long time, 66.7% and 46.7% nurses felt like restricting activity , 80.0% and 73.3% nurses not adopted any measures to manage low back pain in both the groups respectively .
- In experimental group 53.3% nurses utilized seating facilities and in control group 33.3% nurses availed break time, 100% and 93.3% nurses not aware of Acharya Technique in both the group , 86.7% nurses in experimental group were not practicing any exercise and in control group 53.3% nurses were practicing exercise among them 100 % nurses doing walking about 10-15 minutes per day.
- Table 5.1 revealed that there was statistically significant association found between the level of low back pain among nurses working in ICU with the demographic variables such as age and dietary habit at 1% level of significance. There was no significant association found between the level of low back pain with the other demographic variables such as BMI, religion, monthly income marital status , type of family etc. The table also reveals there was statistically significant association found between the post test level of low back pain among nurses working in ICU with the clinical variables such

as measures adopted to manage low back pain at 1% level of significance. There was no significant association found between the level of low back pain with the other clinical variables such as frequency, duration, type, contributing factors of low back pain.

- Table 5.2 revealed that there was statistically significant association found between the level of low back pain among nurses working in OT with the demographic variables such as marital status, type of cases nursed in OT at 5% level of significance. There was no significant association found between level of low back pain with the other demographic variables such as age, dietary habit, type of family etc.
- Table 5.3 revealed that there was statistically significant association found between the level of low back pain among nurses working in OT with the clinical variables such as duration, hours feeling low back pain per day and frequency of low back pain per day at 5% level of significance . There was no significant association found between the level of low back pain with the other clinical variables such as contributing factors, low back pain makes them to feel, measures adopted to manage low back pain etc.
- There was no statistically significant association found between the level of low back pain disability with demographic variables such as age ,gender, BMI, monthly income, type of family and clinical variables such as type, duration, frequency, hours feeling low back pain per day, adopting measures to manage low back pain etc.
- Table 5.4 revealed that there was statistically significant association found between the level of low back pain disability and demographic variables such as type of family and total years of clinical experience among nurses working in OT at 1% level of significance. whereas no statistically significant association found between the level of low back pain disability with other demographic variables such as age, gender, monthly

income, present working area, number of cases nursed per day and clinical variables such as hours of feeling low back pain, adopting measures to manage low back pain etc.

## CONCLUSION

It is observed that the low back pain is common among nurses working in ICU and OT. Nurses play a vital role in protecting, maintaining and improving individuals and community's health. This study findings showed that Acharya Technique is effective in reducing low back pain and low back pain disability among nurses working in ICU and OT. Acharya Technique can be educated and practiced as a non pharmacological measure for reducing low back pain and low back pain disability. The study findings concluded that Acharya Technique can be included in continuing educational programmes on wider scale and accept it as a measure followed to get rid of low back pain among nurses.

## IMPLICATION

The findings of the study have its implication in various branches of nursing namely nursing practice, nursing administration and nursing research.

## NURSING PRACTICE

- Acharya Technique can be incorporated as one of the interventions to relieve low back pain among health care team members.
- Nurses can create awareness regarding the effectiveness of Acharya Technique in reducing low back pain and low back pain disability among other members of the health care team/ professionals.
- Nurses can also demonstrate the steps of Acharya Technique to the patients with low back pain and encourage them to continue.

## NURSING EDUCATION

- Nurse educator can teach and demonstrate the steps of Acharya Technique to nursing students .
- Nurse educator can encourage the nursing students to educate about this technique to staff nurses and other patients with low back pain in various settings including hospitals and community.

## NURSING ADMINISTRATION

- Nurse administrator can participate in formulating the policies and protocols to incorporate the practice of Acharya Technique on low back pain among nurses working in ICU and OT.
- Nurse administrator can formulate assessment format for low back pain
- Nurse administrator can plan and organize continuing nursing education program for nurses on effectiveness of non pharmacological measures like Acharya Technique, acupressure, music therapy, meditation and yoga in reducing low back pain and low back pain disability.
- Nurse administrator can plan and organize awareness program on prevention of low back pain and measures to overcome among nurses working in community settings.

## NURSING RESEARCH

- The findings of this study can be disseminated through conferences, seminars and it can be published in journals.
- The study will be valuable reference material for future research.

## RECOMMENDATIONS

The study can be conducted in a larger sample to generalize the findings.

- A study can be conducted to assess the effectiveness of Acharya Technique on leg pain among nurses working in various speciality units.
- A comparative study can be conducted to assess the effectiveness of Acharya Technique on low back pain and leg pain among nurses working in ICU and OT.
- A study can be done to assess the knowledge, attitude and skill among staff nurses regarding complementary and alternative therapies for management of low back pain and disability.
- A comparative study can be conducted to assess the effectiveness of Acharya Technique among nurses working in ICU and OT.
- An epidemiological study can be done to assess the prevalence and risk factors of low back pain among nurses at Chennai.
- A study can be conducted to assess the effectiveness of Acharya Technique on other conditions like spondylitis, sciatica, headache etc.
- A comparative study can be conducted to assess the effectiveness of Acharya Technique on low back pain among government versus private hospital nurses.

## LIMITATIONS

There were no limitations faced by the investigator during the study.

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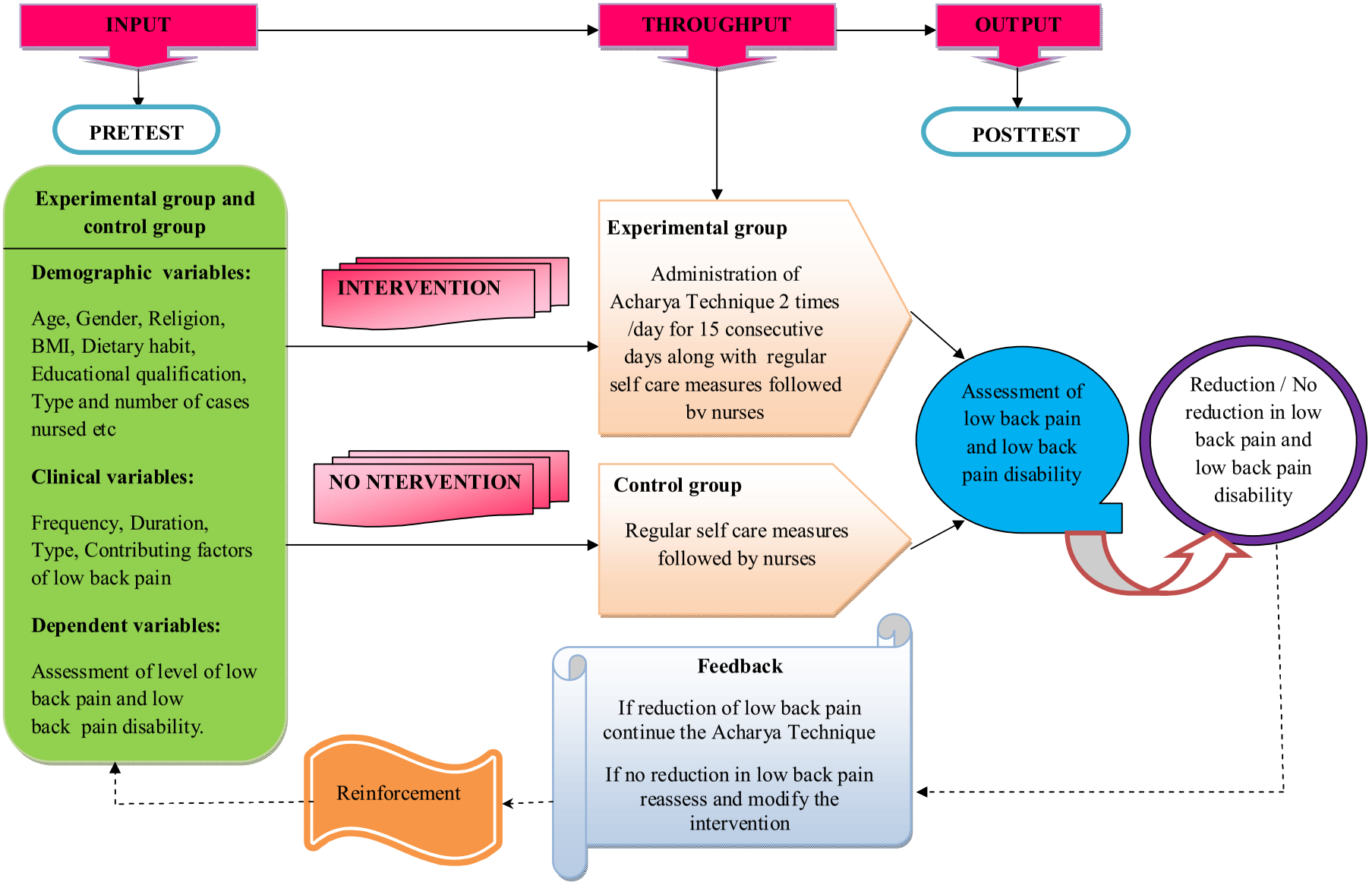



**FIGURE 1: CONCEPTUAL FRAMEWORK BASED ON LUDWIG VON BERTALANFFY OPEN SYSTEM MODEL THEORY ( 2005 )**

# TOOL TO ASSESS THE EFECTIVENESS OF ACHARYA TECHNIQUE ON LOW BACK PAIN AMONG NURSES WORKING IN ICU AND OT AT SELECTED HOSPITALS, CHENNAI.

## SECTION-I

## PART – A

## DEMOGRAPHIC PROFILE

Sample Number…….

1. Age in years
    a. 25-<35years
    b. 35-<45 years
    c. 45-<55 years
2. Gender
    a. Male
    b. Female
3. BMI
    a. Underweight
    b. Normal
    c. Overweight
4. Religion
    a. Hindu
    b. Christian
    c. Muslim
    d. Others

5. Monthly income

   a. Rs10001-15000

   b. Rs15001-20000

   c. Rs20001-25000

6. Dietary Habit

   a. Vegetarian

   b. Non Vegetarian

7. Marital Status

   a. Single

   b. Married

   c. Widower/ Widow

   d. Divorced/Separated

8. Type of family

   a. Nuclear family

   b. Joint family

9. Educational qualification

   a. Diploma in nursing

   b. Bachelor of nursing

   c. Master in Nursing

10. Present Working Area

   a.ICU

   b.OT

11. Total years of clinical experience in ICU/OT

a. <3 years

b. 3-<6 years

c.>6 years

12. Designation

a. Junior staff nurse

b. Staff nurse

c. Shift incharge

d. Incharge

e. Supervisor

13. Types of cases nursed in ICU/operation Theatre

a. General cases

b. Specialty cases

14. No of cases cared per Day

a. 0-1 case

b. 1-2 cases

c. 2-3 cases

d. 3 and above cases

15. Average number of hours you work in ICU or operation theatre per day

a. 6 hours

b. 7 hours

c. 8 hours

d. More than 8 hours

**PART-B- CLINICAL PROFILE**

1. Do you have low back pain

    a. Yes

    b. No

2. How long do you have low back pain

    a. Less than 6months

    b. 6months to 1year

    c. 1year to 2years

3. What is the type of pain you perceive.

    a. Radiating

    b. Nagging pain

    c. Throbbing pain

    d. Others specify

4. How many hours feel low back pain per day

    a. One hour

    b.1 – 2 Hours

    c. More than 2 Hours

    d. Throughout the day

5. How frequent you experience low back pain

    a. Daily

    b. Sometimes

    c. While taking care of  many patients

    d. While extending duty time

6. Which of the following factors often contribute to low back pain?

a. Lifting patient

b. Standing for long time

c. Transferring patient from bed to chair or bed to bed

d. Any other

7. Low back pain makes you feel like

a. Restrict activity

b. Transfer to another area

c. Changing profession

d. Taking many days off/ leave

8. Do you adopt any measures to manage low back pain ?

a. Yes

b. No

If yes, specify which measures do you adopt

a. I don't do anything

b. Use pain killer and rest

c. Exercise and Use back belt

d. Restrict movement at work place and home

9. Do you adopt any occupational safety measures given by institution like

a. Availing break during working hours

b. Seating facilities

c. Utilizing sick leave/Other leave facilities

d. Yearly health check up

10. Are you aware of Stretching exercise (Acharya Technique) for low back pain

a. Yes

b. No

If yes, specify the source of information.

a. Mass media

b. Friends/Relatives

c. Health care Personnel.

d. Books

11. Do you practice any exercise

a. Yes

b. No

If yes what type of exercise

a. Walking

b. Aerobics'

c. Jogging

d. Any other specify

12. Duration of exercise per day

a.10 – 15 Minutes

b.15 – 20 Minutes

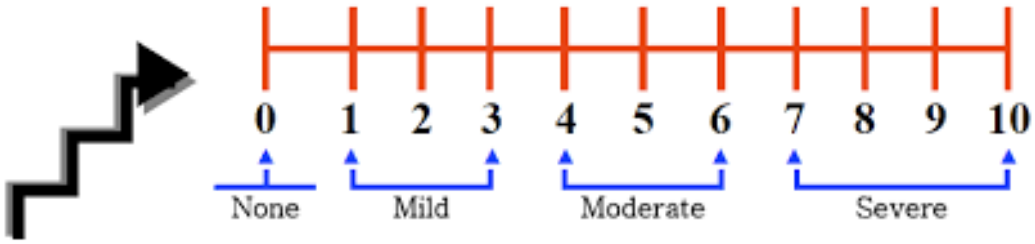
c.20 – 25 Minutes

d.25 – 30 Minutes

**SECTION-B**

**TOOL TO ASSESS THE INTENSITY OF LOW BACK PAIN**

**NUMERICAL PAIN SCALE**




## Scoring Key :

0-No pain

1-3 Mild pain

4-6 Moderate pain

7-10 Severe pain

## SECTION - C

**TOOL TO ASSESS THE LOW BACK PAIN DISABILITY**

**MODIFIED AND ADOPTED FROM ROLAND MORRIS QUESTIONNAIRE(2012)**

**Sample Number** **Date:**

Please tick the option YES/NO that describe you when you experience low back pain

**MY LOW BACK PAIN COMPELLS ME TO ;**

| S.NO | CONTENT | YES | NO |
|---|---|---|---|
| 1 | change the activity frequently | | |
| 2 | walk slower than the usual | | |
| 3 | restrict long travel | | |
| 4 | stand only for a short period of time | | |
| 5 | find difficult to get out suddenly from a chair | | |
| 6 | use side rails to climb up stairs. | | |
| 7 | restrict bending or kneeling down | | |
| 8 | avoid heavy lifting | | |
| 9 | have disturbed sleep | | |
| 10 | get dressed slowly | | |
| 11 | get relaxed more often. | | |
| 12 | avoid taking food | | |
| 13 | get irritated more often | | |
| 14 | upset often | | |
| 15 | fear that have associated disease condition. | | |
| 16 | shout at family members | | |
| 17 | rarely engage in recreational activities | | |
| 18 | rarely go to temple/church to offer prayer | | |
| 19 | restrict interpersonal relationship | | |
| 20 | avoid assisting for long time procedure | | |
| 21 | get delayed in performing regular ward routines | | |
| 22 | feel hopeless in completing task in ward | | |
| 23 | lack interest in learning new things | | |
| 24 | lack concentrate in activities | | |

**INTERPRETATION:**

0-<25% No disability
25-<50%Mild disability
50-<75% Moderate disability
75-100% Severe disability

# LESSON PLAN ON ACHARYA TECHNIQUE

## GENERAL OBJECTIVE:

At the end of the procedure, the nurses will be able to acquire in depth knowledge regarding Acharya Technique (stretching exercise) and develop desirable attitude to accept and practice this in their day to day life in preventing low back pain.

## SPECIFIC OBJECTIVES:

At the end of procedure, the nurses will be able to

- define Acharya Technique
- enlist the benefits Acharya Technique
- demonstrate the steps of Acharya Technique
- discuss the do's and dont's of Acharya Technique

## Central objective:

At the end of the procedure, the nurses will be able to acquire in depth knowledge regarding Acharya Technique (stretching exercise) and develop desirable attitude to accept and practice this in their day to day life in preventing low back pain.

## Specific objectives:

At the end of procedure, the nurses will be able to

- define Acharya Technique
- enlist the benefits Acharya Technique
- demonstrate the steps of Acharya Technique
- discuss the do's and dont's of Acharya Technique

| S.L No | Time | Specific objectives | Content | Researcher's activity | Nurses activity |
|---|---|---|---|---|---|
| | 5 minutes | | **INTRODUCTION:**<br>As compared to most allopathic medicines, this nature cure exercise has important benefits as per actual confirmation and feedback from patients includes relief from headaches and migraines and low back pain etc. Almost all the patients treated by Acharya Technique have confirmed immediate relief from existing pain just after practicing for 3-5 minutes on the first try.<br>One feels very light in the back and clear in the mind with keener senses and better concentration. Thus even healthy people can benefit from this to maintain a healthier, balanced and active lifestyle. | Introducing the topic | Listening |
| | 3 minutes | Define Acharya Technique on low back pain. | **DEFINITION:**<br>Simple self curing stretching exercises which activate the various yogic chakaras consists five steps each of a half minute duration for backaches, spondylitis,slip-disc,knee pains, varicose veins,pre menstrual tensions,sciatica etc. | Defining | Listening |

| | | | | | |
|---|---|---|---|---|---|
| | 3 minutes | Enlist the benefits of Acharya Technique | **BENEFITS OF ACHARYA TECHNIQUE:**<br>As compared to allopathic medicines, this nature cure exercise has many benefits<br>• Relief from backache, headache and migraines<br>• Improvement in sleeping patterns<br>• Warding off or reducing prostate problems<br>• Reduction in varicose veins<br>• Minimize premenstrual tensions and muscle cramps | Enlisting | Listening |
| | 15 minutes | Demonstrate the steps of Acharya Technique | **PROTOCOL FOR INTERVENTION**<br>Acharya Technique consists of simple natural movements and cannot harm or worsen , stretching exercises before coming out of the bed each step for a half a minute. | Demonstrating | listening |

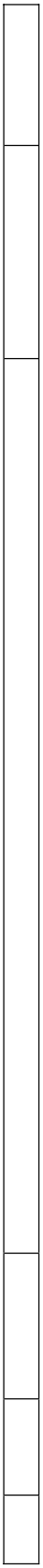
| | | | | | |
|---|---|---|---|---|---|
| | | | **Step I**<br>Asked to lie with palms under head by looking at the ceiling, Pull feet towards them with jerk by keeping the heels firmly in the bed. Asked them to remain in that same position for few seconds and take the feet sideways. Left foot to the left side and right leg to right side. Asked them to bring feet together in a circular motion towards the centre.<br>Asked to straight the legs holding feet together and relax in that position for a few seconds. Repeat this for ten times.<br>**Step II**<br>Asked to lie with palms under head. Pull the feet towards them with a slight jerk by holding the feet together . Take both the feet straight downwards with a similar jerk. Take the feet sideways right to the right side and left one to the left side. Asked them to bring feet together in a circular motion , straighten the legs and relax for some time. Repeat this 10-15 times. | | |

| | | | | | |
|---|---|---|---|---|---|
| | | | **Step III**<br>Asked to lie with palms under head looking at the ceiling , Pull both the feet towards in a sudden jerk. Asked to hold them together tightly for a few seconds, slowly release and straighten the legs and come to the original position. Do it for 10- 15 times.<br>**Step IV**<br>Asked to lie on their back with palms under head, Part the feet (4-6 inches).Pull the feet towards them half way. Suddenly pull both the feet upwards and strike the knees gently in a few seconds. Release the pressure<br>by separating the knees, straighten the legs down to the original position. | | |

| | | | | | |
|---|---|---|---|---|---|
| | 2 minutes | Discuss the do's and dont's of Acharya Technique | **Step V**<br>Adjust the position in the bed in such a way that the feet touches the wall or the wooden plank or rod of the cot. Asked to close eyes and stretch and becoming longer and longer. Continue to push against the plank or wall which will push half an inch or so backward. Point the toes downwards as if the entire body is in a straight line. Asked them to turn on to the side and raise upto the sitting position by supporting hands.<br>**DO'S AND DON'TS :**<br>• Do not lift heavy objects or heavy weights<br>• Do not bend the back to lift anything lying on the floor instead bend knees to reach out to grab the things while gardening or watering the plants<br>• Do not get up from bed with the sudden jerk after sleep or rest instead of that turn to one side and use other free hand for support and then get up cautiously. | Discussing | |

| | | | | | |
|---|---|---|---|---|---|
| | | | • Do not push heavy tables ,furniture etc pull them slowly without bending back by putting one foot forward<br>• Never try to run up the stairs, hold the side railing by hand and taking some exertion on the hand.<br>• Keep bowel movements free and regular.<br>• Do not sit in inconvenient or uncomfortable postures for long time.<br>• Do not allow indigestion or flatulence as both can trouble.<br>• Adequate exercises that suits state of health is must<br>• Drink plenty of water<br>• Do not do any other exercises<br><br>**CONCLUSION**<br><br>Acharya Technique is the simple form of exercise which will help to reduce the low back pain. Even healthy people can benefit from this technique to maintain a healthier, balanced and active life style. | | |

| | | | | | |
|---|---|---|---|---|---|
| | | | **REFERENCE**<br>1. ACHARYA ,S.M ‘’Acharya Technique for Backaches and Spinal & Nervous Rejuvenation’’.(1965)<br>2. TNAI manual ’’ Acharya Technique on low back pain ‘’(2014) | | |



**INVESTIGATOR DEMONSTRATING THE STEPS OF**

**ACHARYA TECHNIQUE**

**STEP : 1 & 4**

**STEP : 2**


**STEP : 3**

**STEP : 5**

# EFFECTIVENESS OF ACHARYA TECHNIQUE ON LOW BACK PAIN AMONG NURSES WORKING IN ICU AND OT AT SELECTED HOSPITALS, CHENNAI.


## ABSTRACT

## INTRODUCTION

Low Back Pain (LBP) or lumbo sacral pain is defined as discomfort in the spinal area below the level of $12^{th}$ rib and above the gluteal folds experienced at least once a month , with or without radiation into the leg. Prevalence of LBP is 60-80% among general population globally in which 10-50% of them receive stretching exercise as treatment for significant low back pain. Worldwide low back pain is not only considered to be the most common reason for functional disability, but also it is estimated to affect 90% of the universal population. The nurses working in ICU and OT experience low back pain more frequently due to reasons such as providing patient care by bending forward for long durations, over-forcing /over-loading some body parts while repositioning patients and sparing more time for patient care. Exercise play an important role in preventing and reducing low back pain by strengthening the back muscles and improving flexibility. Acharya Technique is a simple stretching exercise consisting of 5 steps each with half a minute duration to strengthen lower back muscles and to reduce low back pain.

## STATEMENT OF PROBLEM

A Study to assess the effectiveness of Acharya Technique on low back pain among nurses working in ICU and OT at Selected Hospitals, Chennai.

## OBJECTIVES

1. To assess the low back pain among nurses before and after intervention.

2. To assess the effectiveness of Acharya Technique on low back pain among nurses

3. To find association between post interventional level of low back pain with the selected demographic and clinical variables.

## HYPOTHESIS

H0: There will be no significant difference in low back pain of nurses in ICU and OT between experimental and control group.

## METHODOLOGY

The research approach was experimental in nature and quasi experimental design was used. The study was conducted among 60 nurses with low back pain and working in ICU and OT. Thirty nurses in experimental group (ICU-15,OT-15) and 30 nurses in control group (ICU-15,OT-15) were selected by using non probability purposive sampling technique. Pre test was conducted using semi structured questionnaire .For the experimental group, the investigator demonstrated Acharya Technique and the nurses were asked to do the exercise 2 times a day for a period of 15 days morning under the supervision and in the evening by their own. Post assessment was done on the sixteenth day by using the same scale.

## RESULTS

Comparison of pre and post test findings showed that in the experimental group ,the mean score of level of low back pain was reduced from 6.33 to 3.27 in OT and from 6.27 to 2.87 in ICU. The reduction of low back pain was statistically significant at 1% level of significance (p=0.001). The mean score of level of low back pain disability in experimental group was reduced from 13.80 to 10.80 in OT and from 13.93 to 9.20 in ICU. The reduction of low back pain disability was statistically significant at 1% level of significance (p=0.001). There was a statistically significant difference in low back pain and low back pain disability between nurses in ICU and in OT experimental group at (p=0.05) level .The findings reveals that Acharya Technique was effective in reducing low back pain and low back pain disability among experimental group of nurses in ICU when compared to nurses in OT. There was a statistically significant association found between the level of low back pain of nurses working in ICU with the demographic variables such as age, dietary habit and clinical variables such as measures adopted to manage low back pain. There was a statistically significant association found between the level of low back pain of nurses working in OT with the demographic variables such as marital status, type of cases nursed and clinical variables such as duration, hours of feeling low back pain per day and frequency .

## CONCLUSION

It is observed that the low back pain is common among nurses working in ICU and OT due to bending forward for long durations, over-forcing/over-loading some body parts while repositioning patients and sparing more time for patient care. This study findings shows that Acharya Technique is effective in reducing low back pain and low back pain disability among nurses working in ICU and OT. Hence Acharya Technique can be used as a non pharmacological measure for reducing low back pain and low back pain disability.

# M.A. CHIDAMBARAM COLLEGE OF NURSING

*A Unit of MAC Educational Foundation*

*VHS Campus, T.T.T.I Post, Adyar, Chennai - 600 113*


MACCON/BC/B.Sc (N) S

Date : 14.05.2015

## TO WHOMSOEVER IT MAY CONCERN

We would like to declare that the research proposal submitted by Mrs. S. Amutha, I year M.Sc (N) student of our college was accepted after obtaining ethical clearance from the college research committee.

**The statement of the problem chosen :**

" To assess the effectiveness of Acharya Technique on low back pain among nurses working in ICU and OT at Selected Hospital in Chennai".

Sample size - 60
Date 01/06/15 to 30/06/15
Can allowed for the same.
01/06/15

Prof. Dr. (Mrs.) Shyamala Manivannan

Principal.

Prof.Dr.(Mrs).Shyamala Manivannan, RN.,RM.,M.Sc.,(N).,PhD(N)
Principal
M.A. Chidambaram College of Nursing
VHS, TTTI Post, Chennai - 600 113.

1/6/15


Phone : 044 - 2254 2042 Fax : 044 - 2254 1323

Email : macnursing@yahoo.co.in Website : www.macnursing.org

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கல்வித்துறை,
டாக்டர்.காமாட்சி நினைவு மருத்துவமனை,
எண்.1, ரேடியல் சாலை, பள்ளிக்கரணை,
சென்னை - 600100, தமிழ்நாடு.

ACADEMIC ADMINISTRATIVE OFFICE
Dr.Kamakshi Memorial Hospital,
No.1, Radial Road Pallikkaranai,
Chennai – 600100, Tamil Nadu

**DR.P.RAJKUMAR**
**MEDICAL SUPERINTENDENT**

Ref.No.:— 14A/NCCP /06/2015 / Dated:— 01.06.2015

To
**THE PRINCIPAL, [CODE:006]**
**M.A.CHIDAMBARAM COLLEGE OF NURSING,**
**VHS CAMPUS, T.T.T.I. POST,**
**ADYAR, CHENNAI–600113,**
**TAMIL NADU, INDIA**
**PHONE: 044-2254 2042**

**Sir / Madam,**

**SUB:—** ACADEMIC – Experimental Study by the Post Graduate Nursing Candidate(s) from MA Chidambaram College of Nursing, Chennai at Dr.Kamakshi Memorial Hospital Pvt. Ltd. – Permission – Reg.

**REF:—** letter received from the candidate dt: 31/05 through Principal

Kindly refer the letter(s) cited above.

We would like to inform you that the candidate of your Institution is permitted to carry out his/her Experimental Study in our institution.

| | | |
|---|---|---|
| Name of the Candidate | : | **AMUTHA.S.** |
| Study Title | : | "To assess the effectiveness of Acharya Technique on Low Back Ache among Nurses working in ICU and OT at selected Hospitals in Chennai" |
| Under the supervision of | : | Mrs.Sheela Uvaraj (Nursing Superintendent) |

**This Permission Order is VALID for THIRTY (30) DAYS only from the Date of Commencement of his/her Study.**

Date of Commencement of Study : **04.06.2015 (Thursday)**

09/06/15

**Instructions to the Candidates:**

1. Candidates should abide the rules and regulations of Hospital Administration.
2. To maintain good relations with all and particularly with your Supervisor(s).
3. To be punctual and regular. In case of difficulties, approach your Supervisor.
4. Always to carry Identity Card and produce the same on demand.
5. Do not disturb the workers in their work
6. Do not record any information or copy out any drawing or part thereof without the permission of Supervisors.
7. Do not operate any instrument / machine / apparatus without specific instruction of your Supervisor and without his supervision.
8. Do not carry any valuables.

**Nominal Fee: Rs.2250/- (Rupees Two Thousand and Two Hundred and Fifty only)**

The receipt of this communication may kindly be acknowledged at the earliest.

Yours faithfully

**Authorized Signatory**

Copy forwarded for the information to—
(1) Nursing Superintendent
(2) Stock File

MEMORIAL HOSPITAL PVT. LTD. ACADEMICS SECTION CHENNAI-600 100 Date 9/6/15

DETAILS OF FEE PAYMENT:

Amount Paid (on the first day) : Rs. 2250. /-

Date of Payment : 9/6/15

Rc: 1298

**THIS ORIGINAL COMMUNICATION / PHOTOCOPY OF THE SAME SHOULD BE PRODUCED ON THE FIRST DAY OF TRAINING SESSION BY THE FACULTY / STAFF OF YOUR INSTITUTION WHO ACCOMPANY ALL THE CANDIDATES.**

## CERTIFICATE FOR THE CONTENT VALIDITY

This is to certify that the tool developed by A. Amutha, M.sc (Nursing) Student of M A Chidambaram college of Nursing for " A study to assess the effectiveness of Acharya technique on low back pain among nurses working in ICU and OT at Selected Hospittal, Chennai ,Is validated by the undersigned and she can proceed with this tool to conduct the main study.

Date : 21/2/2015

Signature,

Prof Hema. V.M

PRINCIPAL
FACULTY OF NURSING
Dr. M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
UNIVERSITY
(DECL U/S 3 OF UGC ACT 1956)
CHENNAI-95

## CERTIFICATE FOR THE CONTENT VALIDITY

This is to certify that the tool developed by A. Amutha, M.sc (Nursing) Student of M A Chidambaram college of Nursing for " A study to assess the effectiveness of Acharya technique on low back pain among nurses working in ICU and OT at Selected Hospittal, Chennai ,Is validated by the undersigned and she can proceed with this tool to conduct the main study.

Date : 16.02.2015

MOHAMED SATHAK A.J. COLLEGE OF NURSING ★ 34, Rajiv Gandhi Road, Chennai-603 103.

Signature,

PRINCIPAL
MOHAMED SATHAK
A.J. COLLEGE OF NURSING
34, RAJIV GANDHI ROAD (OMR)
IT HIGHWAY, SIRUSERI, CHENNAI-603103

## CERTIFICATE FOR THE CONTENT VALIDITY

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Date : 20/1/2016.

Signature,

A. Seetha Lakshmi

Reader, Faculty of Nursing, SRU.

SRI RAMACHANDRA COLLEGE OF NURSING
Sri Ramachandra University
Porur, Chennai - 600 116

## CERTIFICATE FOR THE CONTENT VALIDITY

This is to certify that the tool developed by A. Amutha, M.sc (Nursing) Student of M A Chidambaram college of Nursing for " A study to assess the effectiveness of Acharya technique on low back pain among nurses working in ICU and OT at Selected Hospittal, Chennai ,Is validated by the undersigned and she can proceed with this tool to conduct the main study.

Date : 10/2/15

Signature,

DR. M.C. VASUDEVAN
M.D.(MED), Dip.NBE(NEUROSURG)
Reg. No. 24653
Dr. Achanta Lakshmipathi
Neurosurgical Centre
Voluntary Health Services Hospital
Taramani, Chennai-600 113.

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"WE CARE FOR YOU"



21st April, 2015

**TO WHOMSOEVER IT MAY CONCERN**

This is to inform that Mrs. A. Amutha has voluntarily gone through the basics of the **Acharya Technique** at VHS-CARES, Rehabilitation Centre for a period of ten days from 05th to 15th January, 2015.

Mr Ramakumar, MPT (Neuro)
In-charge Physiotherapist

Dr.James Devasagayam, M.Sc., PhD
Asst. Prof. of Clinical Psychology

THE INSTITUTE OF NEUROLOGICAL SCIENCES
Voluntary Health Services Medical Centre
Rajiv Gandhi Salai, Taramani,
Chennai - 600 113.



Services Provided :
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Neuro Psychiatry, Occupational Therapy, Physiotherapy, Psychotherapy, Social Therapy

# REQUISITION FOR CONDUCTING RESEARCH STUDY

FROM

Amutha . S
M.Sc (N) – I Year
M.A. Chidambaram college of Nursing
Voluntary Health Service Hospital
TTTI Post , Adyar , Chennai-600113

25.4.14

To

The Medical Director- Clinical &Academic Affairs,
VHS Hospital , TTTI Post,
Chennai-113.

yes.
25/4/15

DIRECTOR
CLINICAL & ACADEMIC AFFAIRS
VOLUNTARY HEALTH SERVICES
THARAMANI, CHENNAI - 600 113.

THROUGH

The Principal
M.A. Chidambaram college of Nursing
Voluntary Health Service Hospital
TTTI Post , Adyar , Chennai -600113

Respected sir /madam

I am Mrs. Amutha. S , M.Sc (N) –I Year student of M.A. Chidambaram college of nursing, VHS Hospital, TTTI Post,Chennai. As per the part of the requirement in M.Sc (N) programme as per the Tamil Nadu Dr.MGR Medical University specification, I have to complete the dissertation .

The topic I have selected is "**A study to assess the effectiveness of Acharya Technique on low back pain among nurses working in ICU and OT at selected Hospitals, Chennai".**

I am interested in conducting the pilot study in your esteemed institution.

The period of data collection is from 11.05.15 to 16.05.15 for pilot study .

I assure you that my study will not interfere with the routine functioning of the institution. Kindly grant me permission to conduct the study in your institution.

Thanking you in anticipation for the favourable response.

Date:

Place: Chennai-113

Yours faithfully,

(AMUTHA . S)

24/4/15

Prof.Dr.(Mrs).Shyamala Manivannan, BN.,RM.,M.Sc.,(N).,PhD(N)
Principal
M.A. Chidambaram College of Nursing
VHS, TTTI Post, Chennai - 600 113.